

MATHEMATICS FOR PRIMARY FOUR FIRST TERM





UNIT

1

Theme 1 | Number Sense and Operations

Unit 1

Place Value

Photo Credit: Frank60 / Shutterstock.com



Concept (1): Reinforcing Place Value

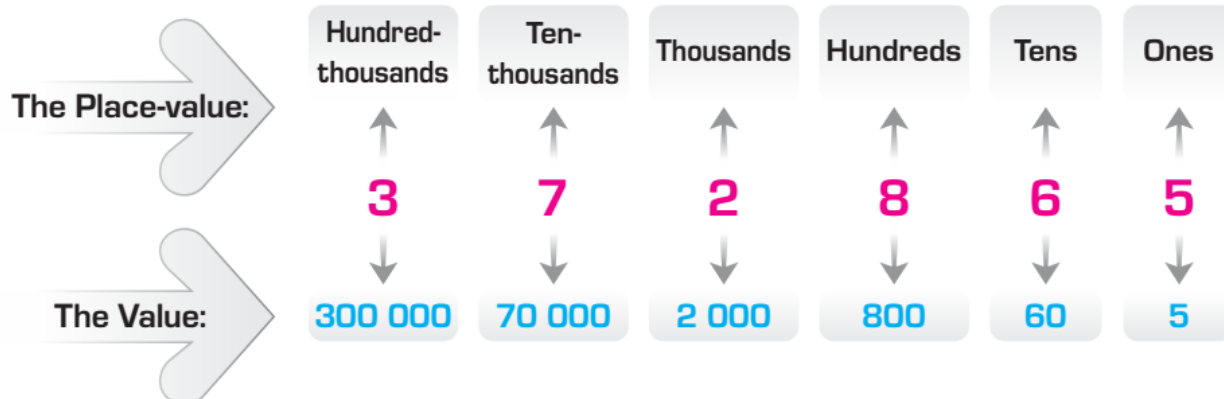
Lesson (1)

Really Big Numbers

The Place Value

- In the following number: 372 865

Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
3	7	2	8	6	5



Lesson (2)

Changing Values

Find the value of the underlined digit.

2. 703,890

3. 63,540

4. 182,034

5. 345,890



Find the value of the underlined digit.

8. 230,001

9. 803,040

10. 46,842

11. 980,650



17. **THINK SMARTER** For numbers 17a–17e, select True or False for each statement.

- 17a. The value of 7 in 375,081 is 7,000. ☐ True ☐ False
- 17b. The value of 6 in 269,480 is 600,000. ☐ True ☐ False
- 17c. The value of 5 in 427,593 is 500. ☐ True ☐ False
- 17d. The value of 1 in 375,081 is 10. ☐ True ☐ False
- 17e. The value of 4 in 943,268 is 40,000. ☐ True ☐ False



Lesson (3)

Many Ways to Write

1. Write each number in standard form.

a. $5,000,000,000 + 70,000 + 1,000 + 40 + 9$ _____

b. Fifty-eight million, thirty-seven thousand, fourteen. _____

2. Write the word form of the number 3,300,030,303

3. Write the expanded form of the number 7,608,490



Complete the following.

a. 700,005,009 = seven hundred _____, five _____, nine.

b. 4,030,400,050 = _____ milliard, _____ million, _____ thousand, _____

c. 417,900,770 = _____ seventeen million, nine hundred _____, _____ seventy.

d. 2,100,080,005 = _____ milliard, one _____, eighty _____, five.



Lesson (4)

Composing and Decomposing

Composed 345,532

Decomposed $(3 \times 100,000) + (4 \times 10,000) + (5 \times 1,000) +$
 $(5 \times 100) + (3 \times 10) + (2 \times 1)$

Milliards	Millions			Thousands			Ones		
O	H	T	O	H	T	O	H	T	O
				3	4	5	5	3	2

1. Composed 6,124,030,420

Decomposed

Milliards	Millions			Thousands			Ones		
O	H	T	O	H	T	O	H	T	O



2. Composed

Decomposed

Milliards	Millions			Thousands			Ones		
O	H	T	O	H	T	O	H	T	O
5	4	0	0	1	5	9	0	2	4



3. Composed _____

Decomposed $(7 \times 1,000,000,000) + (5 \times 10,000,000) + (4 \times 10,000) + (3 \times 1,000)$
 $+ (5 \times 100) + (9 \times 1)$

Milliards	Millions			Thousands			Ones		
O	H	T	O	H	T	O	H	T	O



Composed : _____

Decomposed : $[7 \times 10,000] + [8 \times 1,000] + [5 \times 100] + [2 \times 10] + [6 \times 1]$

MILLIARDS	MILLIONS			THOUSANDS			ONES		
O	H	T	O	H	T	O	H	T	O



Composed : _____

Decomposed : _____

MILLIARDS	MILLIONS			THOUSANDS			ONES		
O	H	T	O	H	T	O	H	T	O
3	2	0	9	5	0	0	7	0	8



Composed : 7,052,318,709

Decomposed : _____

MILLIARDS	MILLIONS			THOUSANDS			ONES		
O	H	T	O	H	T	O	H	T	O



What Is My Value? Follow the steps to explore how a digit's value changes when its location changes.

- Choose one digit and enter it in the Ones place.
- Record the value of the digit.
- Continue moving the digit card to the left on the place value chart, recording its new value each time.

Milliards	Millions			Thousands			Ones		
O	H	T	O	H	T	O	H	T	O

My digit is _____

Value of my digit in the Ones place _____

Value of my digit in the Tens place _____

Value of my digit in the Hundreds place _____

Value of my digit in the Thousands place _____

Value of my digit in the Ten Thousands place _____

Value of my digit in the Hundred Thousands place _____

Value of my digit in the Millions place _____

Value of my digit in the Ten Millions place _____

Value of my digit in the Hundred Millions place _____

Value of my digit in the One Billiards place _____



Complete the table:

	Standard Form	Expanded Form
1	565	
2		$4000 + 700 + 6$
3	2,345,222,197	
4		$6,000,000 + 200,000 + 30,000 + 7,000 + 900 + 50 + 8$
5	2,305,031	



Form the **greatest** and the **smallest** number:

4 0 1 8 3 7 6 5 2 9

The **greatest** number:

The **Smallest** number:

4 5 1 9 3 7 6 5 2

The **greatest** number:

The **Smallest** number:



0 1 8 3 7 6 5 2 4

The **greatest** number:

The **Smallest** number:

4 1 0 3 7 6 5 2

The **greatest** number:

The **Smallest** number:

1 8 5 1 6 0 2 9

The **greatest** number:

The **Smallest** number:



Complete the following table:

Numbers	Milliards	Millions			Thousands			H	T	O
	O	H	T	O	H	T	O			
5 406 548 987										
3 589 021 479										
	5	4	6	3	9	8	7	1	5	9
	1	6	4	7	8	5	2	0	8	2



Complete:

(1) 5,326,548,987 = billion, million, thousand &

(2) 2,163,900,800 = billion, million, thousand &

(3) 4,132,876,514 = billion, million, thousand &

(4) 7,325,165,273 = billion, million, thousand &

(5) 5,153,276,542 = billion, million, thousand &

(6) 5,180,070,506 = billion, million, thousand &

(7) 6,537,002,054 = billion, million, thousand &



Write the value and the place value of the **red** digit:

The number	The value	The place value
4,325,526,412
8,523,256,412
2,732,154,546
5,124,652,487
1,541,656,218
9,148,562,487
4,562,732,154



Homework

Compare the numbers below and circle the greater number in each row:

23,410	22,999
111,223	101,345
4,890	4,891



Use the digits 3, 5, 7, 8, 8, 1, 6, 2 to make the greatest number you can.
Then use the same digits to make the smallest number you can.



What is the value of the following?

- A. 9 in the Tens place? _____
- B. 3 in the Hundreds place? _____
- C. 60 Tens? _____
- D. 80 Thousands? _____



Choose the correct answer:

1. What is the standard form for $3,000,000 + 500,000 + 50$?
 A. 355 B. 3,500,500
 C. 3,500,050 D. 3,005,005
2. Which of the following shows the numeral "five milliard, four hundred twenty-six thousand" in standard form ?
 A. 5,000,426 B. 5,426,000
 C. 5,000,426,000 D. 5,426,000,000
3. Which of the following represents the number 4,305,082 written in expanded form ?
 A. $4,000,000 + 300,000 + 50,000 + 800 + 2$
 B. $4,000,000 + 300,000 + 50,000 + 80 + 2$
 C. $4,000,000 + 30,000 + 5,000 + 800 + 2$
 D. $4,000,000 + 300,000 + 5,000 + 80 + 2$
4. Which is the correct way to write the numeral 25,702 in word form ?
 A. twenty-five, seven hundred two.
 B. twenty-five thousand, seven hundred two.
 C. twenty-five ten thousand, seven hundred two.
 D. twenty-five thousand, seventy-two.
5. Which expression decomposes the numeral 50,374 in expanded form ?
 A. $50,000 + 300 + 70 + 4$
 B. $50,000 + 3,000 + 70 + 4$
 C. $50,000 + 3,000 + 700 + 4$
 D. $5,000 + 300 + 70 + 4$
6. Which is a compose to $[7 \times 10,000] + [2 \times 10] + [4 \times 1]$?
 A. 724 B. 70,240
 C. 7,024 D. 70,024
7. Which numeral and phrase are ways of writing the number that is composed of 3 ten thousands, 5 hundreds, and 2 ones ? Select two correct answers.
 A. 310,521 B. 30,520 C. 30,502
 D. three hundred ten thousand, five hundred twenty one.
 E. thirty thousand, five hundred two.
 F. thirty thousand, five hundred twenty.



Decompose the following numerals:

Word form:

Nine million, four hundred forty thousand, two hundred twenty.

Decomposed form:

.....
.....

Word form:

Six milliard, nine hundred million, ten thousand, two hundred.

Decomposed form:

.....
.....

Word form:

Eight million, seventy thousand, two hundred.

Decomposed form:

.....
.....

Word form:

Twenty seven hundred.

Decomposed form:

.....
.....



Concept (2): Using the Place Value

Lesson (5)

Comparing Numbers in Multiple forms

Complete:

- (1) The smallest 7-digit number is
- (2) The smallest 9-digit number is
- (3) The smallest different 8-digit number is
- (4) The smallest different 10-digit number is
- (5) The greatest 6-digit number is
- (6) The greatest 12-digit number is
- (7) The greatest different 7-digit number is
- (8) The greatest different 8-digit number is

Complete using (<) , (>) or (=):

14,780,064		14,790,064
5,103,492,500		Five milliard, three hundred million, seven hundred fifteen thousand, forty-three
$(7 \times 100,000,000) + (4 \times 10,000,000) + (9 \times 10,000) + (8 \times 10) + (1 \times 10)$		$70,000 + 9,000 + 600 + 40 + 3$
8,040,761,903		$8,000,000,000 + 400,000,000 + 700,000 + 60,000 + 1,000 + 900 + 3$



Lesson (6)

Descending and Ascending Numbers

1. List Omar's data in ascending order:

78,090

79,010

78,091

79,100

78,999

_____ ; _____ ; _____ ; _____ ; _____



2. List Mariam's data in descending order. You may use word or standard form.

- three milliard, ten million, one thousand, thirty-four
- three milliard, one million, three hundred twenty-three thousand, three hundred ninety-one
- three milliard, nine hundred ninety thousand, nine hundred ninety-two
- three milliard, one hundred ten million, ninety-nine thousand, four hundred ninety-three



3. List the numbers in ascending order. Use the form in which they are given.

- four milliard, six hundred thousand, four
- 461,014
- four milliard six hundred thousand forty
- $(4 \times 1,000,000,000) + (4 \times 100,000) + (6 \times 10)$
- 6,400,042



Write the numbers in an ascending order:

a. 7,122,890 , 700,122,089 , 70,122,098 , 7,120,980

The order is : _____ , _____ , _____ , _____

b. 3,452,805 , 3,542,805 , 542,905 , 1,000,000,000

The order is : _____ , _____ , _____ , _____

c. 430,000,459 , 43,000,549 , 403,000,456 , 430,549,000

The order is : _____ , _____ , _____ , _____

d. 2,000,751,240 , 2,100,101,240 , 2,010,010,860 , 299,782,561

The order is : _____ , _____ , _____ , _____



Lesson (7)

Rounding Rules

Rounding means replacing the exact number
by another simpler number, near to the exact number.

[1] Round each of the following to the nearest 1000:

126,237 ≈

36,873 ≈

33,500 ≈

19,254 ≈

821,799 ≈

49,500 ≈

2,231,274 ≈

233,695 ≈



[2] Round each of the following to the nearest 10,000:

15,000 ≈

52,600 ≈

78,000 ≈

92,000 ≈

456,450 ≈

69,224 ≈

45,274 ≈

88,695 ≈



[3] Round each of the following to the nearest 100,000:

250,000 ≈

275,600 ≈

878,000 ≈

990,000 ≈

456,450 ≈

469,224 ≈

645,274 ≈

988,695 ≈



[4] Round each of the following to the nearest 1,000,000:

3,250,000 \approx

23,275,600 \approx

7,878,000 \approx

4,990,000 \approx

10,456,450 \approx

45,469,224 \approx

65,645,274 \approx

123,988,695 \approx



[5] Round each of the following to the nearest 1,000,000,000:

2,323,250,000 \approx

6,223,275,600 \approx

8,247,878,000 \approx

7,504,990,000 \approx

4,010,456,450 \approx

6,045,469,224 \approx

5,665,645,274 \approx

2,123,988,695 \approx



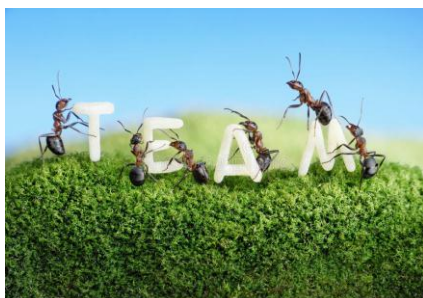
[8] Choose the correct answer:

a) 17085 \approx 17000 to the nearest..... (10 , 100 , 1000)

b) 8453 \approx 8500 to the nearest..... (10 , 100 , 1000)

c) 75643.1 \approx 75600 to the nearest..... (10 , 100 , 1000)

d) 3725.6 \approx 3730 to the nearest..... (10 , 100 , 1000)



PRACTICE

Follow the directions in each problem to round each number to the given place. Use the midpoint strategy or the Rounding Rule strategy.

1. A plane's altitude increased by 2,721 meters. Round this number to the nearest Thousand.
2. A runner ran 1,537 meters but describes the distance he ran with a rounded number. Round 1,537 to the nearest Hundred.
3. A record number of 23,386 ants live in colony A. Round this number to the nearest Ten Thousand.



Try This! Round to the place value of the underlined digit.

A 64,999

C 301,587

B 850,000

D 10,832



Round to the place value of the underlined digit.

2. 934,567

3. 641,267

4. 234,890

5. 347,456

6. 562,408

7. 284,792

8. 199,814

9. 923,718



12. **THINK SMARTER** About 300,000 people attended a festival. For numbers 12a–12e, choose Yes or No to show whether each number could be the exact number of people that attended the festival.

12a. 351,213

☐ Yes

☐ No

12b. 249,899

☐ Yes

☐ No

12c. 252,348

☐ Yes

☐ No

12d. 389,001

☐ Yes

☐ No

12e. 305,992

☐ Yes

☐ No



Homework

Round the numbers below to the Thousands place.

1. 9,621 \approx
2. 42,502 \approx
3. 3824,157 \approx

Round the numbers below to the Hundreds place.

4. 410,671 \approx
5. 423,502 \approx
6. 1,632,542 \approx



Use front-end estimation for the following numbers:

2. 86,433,920
3. 6,627,513,202
4. One hundred sixty-three million, four hundred thirty thousand, eight hundred two





UNIT

2

Theme 1 | Number Sense and Operations

Unit 2 Addition and Subtraction Strategies



Concept (1)

Using Addition & Subtraction Strategies

Lesson (1)

Properties of Addition

Additive Identity Property Solve the following problems.

$$2,345 + 0$$

$$0 + 12,567,109$$



Commutative Property Solve the following problems.

$$5 + 7 + 8 + 3$$

$$8 + 7 + 3 + 5$$

$$7 + 5 + 8 + 3$$

$$3 + 7 + 8 + 5$$



Associative Property Solve the following problems. Remember to solve what is in the parentheses first.

$$(10 + 4) + 20 + 17$$

$$10 + (4 + 20) + 17$$

$$10 + 4 + (20 + 17)$$



1. Select the *best* answer to correctly complete the statement.

Additive Identity	Associative	Commutative
-------------------	-------------	-------------

$4 + 6 = 6 + 4$ is true because of the _____
Property of Addition.



2. Which of these statements is true regarding the sum of $16 + 0$?

- A. $16 + 0 = 16$ because any number added to 0 will equal that number.
- B. $16 + 0 = 0$ because any number added to 0 will equal zero.
- C. $16 + 0 = 1 + 6$ because the addends can be grouped in any way.
- D. $16 + 0 = 6 + 1$ because the addends can be combined in any order.



3. Jabari writes $12 - (8 + 1) = (12 - 8) + 1$. Is the statement true?

- A. Yes, because the Associative Property applies to subtraction.
- B. Yes, because the Commutative Property applies to subtraction.
- C. No, because the Associative Property does not apply to subtraction.
- D. No, because the Commutative Property does not apply to subtraction.



Find the sum.
$$\begin{array}{r} 546 \\ + 215 \\ \hline \end{array}$$

- A. 331
- B. 751
- C. 756
- D. 761

Find the difference.
$$\begin{array}{r} 423 \\ - 118 \\ \hline \end{array}$$

- A. 305
- B. 306
- C. 315
- D. 341

Homework

Select the *best* answer to complete each statement.

Additive Identity

Associative

Commutative

Jamal wrote $(14 + 6) + 21 = 14 + (6 + 21)$ using the

_____ Property of Addition.

He wrote $33 + 16 = 16 + 33$ using the _____

Property of Addition. He wrote $28 + 0 = 28$ using the

_____ Property of Addition.



A student writes the statement $87 - 52 = 52 - 87$. Why is this statement incorrect?

- A. The Associative Property applies to addition but not subtraction.
- B. The Commutative Property applies to addition but not subtraction.
- C. The Associative Property applies to subtraction but not addition.
- D. The Commutative Property applies to subtraction but not addition.



Obaid found that $29,828 + 41,309 = 71,137$. Which estimate could he use to check if his answer is reasonable?

- A. $30,000 + 50,000 = 80,000$
- B. $20,000 + 50,000 = 70,000$
- C. $30,000 + 40,000 = 70,000$
- D. $20,000 + 40,000 = 60,000$



Lesson (2)

Adding with Regrouping

Find the result:

$$\begin{array}{r} \text{a} \quad 3 \ 7 \ 8 \ 5 \ 4 \ 2 \ 1 \\ + \quad 2 \ 1 \ 0 \ 2 \ 3 \ 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b} \quad 4 \ 8 \ 9 \ 1 \ 2 \ 4 \ 3 \\ + \quad 3 \ 1 \ 0 \ 2 \ 3 \ 1 \ 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c} \quad 6 \ 5 \ 8 \ 8 \ 7 \ 6 \\ + \quad 6 \ 7 \ 3 \ 4 \ 5 \ 3 \ 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d} \quad 6 \ 5 \ 4 \ 3 \ 0 \ 0 \ 0 \\ + \quad 4 \ 2 \ 4 \ 2 \ 7 \ 8 \ 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e} \quad 7 \ 0 \ 0 \ 8 \ 1 \ 9 \ 8 \\ + \quad 8 \ 1 \ 9 \ 4 \ 8 \ 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f} \quad 8 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \\ + \quad 3 \ 5 \ 1 \ 4 \ 6 \ 7 \ 9 \\ \hline \end{array}$$

Estimate and Solve Work with your partner to estimate the sums and then solve the problems.

$$\begin{array}{r} 1. \quad 579 \rightarrow \\ + 62 \rightarrow + \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 8,049 \rightarrow \\ + 6,199 \rightarrow + \\ \hline \end{array}$$

A colony of ants is on a march through the jungle looking for food. On this march they made 2 bridges. The first bridge is composed of 142 ants. The second bridge is composed of 165 ants. How many ants were needed for both bridges? Show your work. Then, explain how you know your answer is reasonable.



Estimate

Exact

	Species	Total	Round Each Number to the Nearest Thousand
1.	Black Garden Ants	58,712	
2.	Pavement Ants	81,475	
3.	Pharaoh Ants	42,358	



4. How many ants would you have if you combined the Pharaoh Ants and the Pavement Ants? Use your rounded numbers from the table to estimate, and then find the exact answer.



5. What is the total amount of ants? Use your rounded numbers from the table to estimate, and then find the exact answer.



Abeer and Ehab are traveling from Aswan to Alexandria. They will travel 514 km on the first day to Asyut. They will travel 597 km from Asyut to Alexandria on the second day. How many kilometers will they travel in all?



A Saharan Silver ant is the fastest ant on the planet. It can move about 855 mm a second. If this ant could maintain this speed for 2 seconds, how far would it go?

**Lesson (3)****Subtraction with Regrouping**

A trap jaw ant wanted to cross a river that was 3,548 cm across. The ant had already swum 1,672 cm. How much farther does the ant have to go?



A fire ant colony 255,000 ants. A *Gigantiops destructor* ant colony has 6,200. What is the difference between the size of the two colonies?



Two colonies of fire ants were stuck in a flood and made floating rafts to survive. The first colony had approximately 1,267 ants and the second had 3,452 ants. How many more ants were in the second colony?



Homework

Using 10s Follow your teacher's directions to mentally solve the problems.

1. $3 + 7$
2. $3 + 5 + 7$
3. $7 + 6 + 3$

4. $9 + 1$
5. $1 + 7 + 9$
6. $9 + 6 + 1$

7. $7 + 7 + 3 + 3$
8. $9 + 9 + 1 + 1$



It takes 15,422,140 ants to move a log that weighs 77 kg. It takes approximately 6,350,300 ants to move a rock that weighs 32 kg. How many more ants does it take to move the log than the rock?



Use the subtraction algorithm to solve the problems. Then, round each number to the nearest Thousand to check the reasonableness of your answers.

1.
$$\begin{array}{r} 6,625 \\ - 4,417 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 23,640 \\ - 14,635 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 25,884 \\ - 18,875 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 1,816 \\ - 1,066 \\ \hline \end{array}$$



Concept (2): Solving Multistep Problems

Lesson (4)

Bar Models, Variables, and Story Problems

There are 5,328 ants in the colony. In the colony, 2,164 ants are females and the rest are males. How many male ants are in the colony?

Bar Model:

Equation

Solution



There are 20,000 ants in the colony. In the colony, 12,000 are females and the rest are males. How many male ants are in the colony?

Bar Model:

Equation

Solution



In colony A there are 1,200 ants. Some ants are out foraging for food and supplies, and 700 ants are taking out the colony's trash. How many ants are foraging for food and supplies?

Bar Model:

Equation

Solution



There are 12,000 species of ants. Of these 12,000 species, 2,500 species live in Africa and the rest live in other parts of the world. How many species do not live in Africa?

Bar Model:

Equation

Solution



$$14,000 - n = 6,000$$

Bar Model:

Solution



$$b - 53,500 = 75,200$$

Bar Model:

Solution



$$725,625 + c = 935,075$$

Bar Model:

Solution



$$13,280 - d = 5,420$$

Bar Model:

Solution:



$$e + 205,925 = 810,775$$

Bar Model:

Solution:



Omar found a website created to study ant colonies. He saw that there were 1,025 ants in Colony A on Wednesday. On Friday, 101 ants leave the colony. How many ants are left in Colony A?



Mariam found the same website and saw that there were 1,555 ants in Colony B. How many more ants are in Colony B than in Colony A?



Lesson (5) Solving Multistep Story Problems with Addition and Subtraction

The Great Pyramid had 59,000 visitors in January, 27,525 visitors in February, and 32,975 visitors in March. They expect to have 150,000 visitors by the end of April. How many visitors need to show up in April to reach this count?



New Valley has a population of 256,088. If Matrouh has a population of 429,999 and South Sinai has a population of 108,951, how many more people do Matrouh and South Sinai have combined than New Valley?



The Nile River is approximately 6,650 kilometers long. Kareem and his family travel the Nile River from one end to the other end. If they travel 1,075 kilometers in January, then 1,120 kilometers in February, and then 1,325 kilometers in March, how many more kilometers do they still need to travel to reach the other end?



Aswan has a population of 1,575,914. If Luxor has a population of 1,333,309 and Red Sea has a population of 383,796, how many more people do Luxor and Red Sea have combined than Aswan?



Hazem and Menna are monitoring ant colonies on the website. Hazem has been monitoring an ant colony with 132,890 ants. Menna has been monitoring an ant colony with 57,024 ants and another colony with 72,999 ants. Who has been monitoring more ants? How many more?



Homework

A coffee pot held 1,425 milliliters of coffee. Rashida filled her mug with 730 milliliters of coffee from the pot. Then she poured 460 milliliters for her friend. How can you find out how much coffee was left in the pot?

Select two correct answers.

- A. Add the 730 milliliters Rashida poured in her mug to the 1,425 total milliliters that were in the coffee pot to begin with. Then subtract the 460 milliliters Rashida poured in her friend's mug.
- B. Subtract the 730 milliliters Rashida poured in her mug from the 1,425 milliliters that were in the coffee pot to begin with. Then subtract the 460 milliliters Rashida poured in her friend's mug.
- C. Add the 460 milliliters Rashida poured in her friend's mug to the 1,425 total milliliters that were in the coffee pot to begin with. Then subtract the 730 milliliters Rashida poured in her mug.
- D. Subtract the 460 milliliters Rashida poured in her friend's mug from the 1,425 total milliliters that were in the coffee pot to begin with. Then subtract the 730 milliliters Rashida poured in her mug.



What is the value of x ? $111 + x = 481$

- A. 260
- B. 370
- C. 471
- D. 592



A ship entered port with 611 tonnes of cargo. It picked up a 25-tonne shipment of fresh fruit and a 149-tonne shipment of electronics before it left port. How much cargo did the ship leave port with?

- A. 437 tonnes
- B. 636 tonnes
- C. 760 tonnes
- D. 785 tonnes



A water truck was filled with 4,000 liters of water. It delivered 1,250 liters to its first client. It delivered 620 liters to its second client. It delivered 2,120 liters to its last client. How much water was left in the truck?

- A. 10 liters
- B. 50 liters
- C. 2,130 liters
- D. 7,990 liters



A seamstress had a 21-meter bolt of cloth. She used some of the cloth to make a dress and had 15 meters left over. Let c represent the amount of cloth. Which equation represents this problem?

- A. $15 - c = 21$
- B. $21 - c = 15$
- C. $15 + c = 21$
- D. $21 + c = 15$





UNIT

3

Theme 1 | Number Sense and Operations

Unit 3

Concepts of Measurement



Concept (1): Metric Measurements

Lesson (1)

Measuring the Length

Measurement Review Circle the best unit to measure each length.

1. Height of a student

Kilometer Meter Centimeter Millimeter

2. Distance between home and school

Kilometer Meter Centimeter Millimeter

3. Length of the Nile River

Kilometer Meter Centimeter Millimeter

4. Length of an ant

Kilometer Meter Centimeter Millimeter

5. Distance from Cairo to Alexandria

Kilometer Meter Centimeter Millimeter



Fill in the blanks to answer the following questions. Think of things that could be measured in each unit.

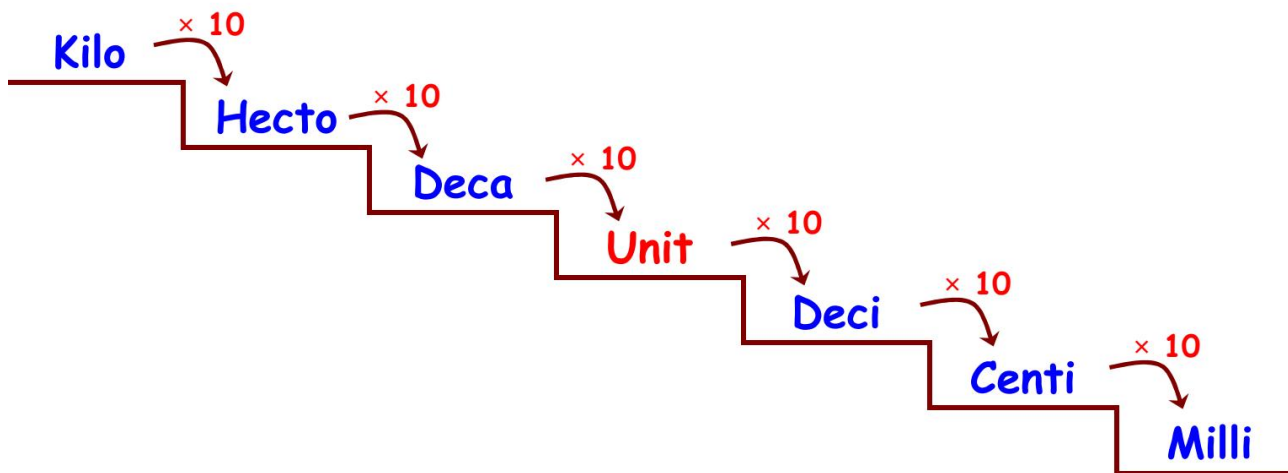
6. _____ is best measured in kilometers

because _____.



Metric Units View and discuss the Metric Conversion chart with your Shoulder Partner.

Kilo-	Hecto-	Deca-	Unit	Deci-	Centi-	Milli-
1,000 units	100 units	10 units	1 unit	1/10 unit	1/100 unit	1/1,000 unit



	Kilometer	Meter
1		1,000
2	3	
3		40,000



	Meter	Centimeter
4	1	
5		300
6	10	



Look at the following example:

140 cm

1 m	40 cm
-----	-------

Convert the following lengths into the given units in the bar models. Use the previous example to help you.

230 cm

7	_____ m	_____ cm
---	---------	----------

478 cm

8	_____ m	_____ cm
---	---------	----------

_____ cm

9	5 m	91 cm
---	-----	-------



Convert the following.

1. 4 m 18 cm = _____ cm

2. 18 m 14 cm = _____ cm

3. 8 km 14 m = _____ m

4. 27 km 55 m = _____ cm



5. If one black ant can walk 250 meters in 1 hour, how many hours will it take to walk 1 kilometer?



6. If the same black ant walked for 10 hours, how far would it go?
Express your answer in kilometers and meters.



Lesson (2)

Measuring Weight

Work with a partner to complete the conversions. Use the previous example to help you.

1. 3 kg = _____ g

2. 8 kg = _____ g

3. _____ kg = 5,000 g

4. 4 kg = _____ g

5. _____ kg = 30,000 g



6. 4,590 g

_____ kg	_____ g
----------	---------



7. 8,400 g

_____ kg	_____ g
----------	---------



8. _____ g

7 kg	414 g
------	-------



9. A colony of black ants is estimated to weigh 3,493 grams.
Rewrite that number using kilograms and grams.



A different ant colony is estimated to weigh 14 kilograms and 89 grams. Rewrite that weight in grams.



PRACTICE

1. Convert:

$$2,456 \text{ g} = \text{_____ kg _____ g}$$

2. Convert:

$$5,235 \text{ g} = \text{_____ kg _____ g}$$

3. Convert:

$$7,324 \text{ g} = \text{_____ kg _____ g}$$

4. Convert:

$$4,535 \text{ g} = \text{_____ kg _____ g}$$



Lesson (3)

Measuring Capacity

1. 6 L = _____ mL
2. 9 L = _____ mL
3. _____ L = 6,000 mL
4. 3 L = _____ mL
5. _____ L = 10,000 mL



9,425 mL

_____ L	_____ mL
---------	----------



6,360 mL

_____ L	_____ mL
---------	----------



_____ mL

8 L	910 mL
-----	--------



A car is filled with 45 liters of petrol. How many milliliters would that be?



A family drank 1 liter 500 milliliters of orange juice at breakfast. If there were 3 liters of orange juice before breakfast, how much orange juice is left?



A car was filled with 20 liters 500 milliliters of petrol. At the end of the day, there were 15 liters 250 milliliters left in the tank. How much petrol was used?



Doha's fish tank contains 5 liters 245 milliliters of water. If the tank can hold 10 liters of water, how much more water does she need to fill the tank?



10. Use the recipe that follows to answer the questions.

Sobia Ingredients:

- 100 g raw short grain rice
- 500 mL of water
- 750 mL cold milk
- 100 g caster sugar
- 5 mL vanilla
- 500 mL coconut milk

Which ingredients are measured by mass?

Which ingredients are measured by capacity?

What is the total amount of liquid ingredients in the drink in milliliters? In liters?



Homework**Convert to centimeters:**

1. 6 m =

2. 20 m 10 cm =

**Convert to meters:**

3. 23 km =

4. 800 km 50 m =



5. A worker ant walked 3,500 meters on Monday to look for food and 2,450 meters on Tuesday to look for food. How far did the ant travel on Monday and Tuesday combined? Express your answer in meters, and then convert to a combination of kilometers and meters.



Convert each of the following.

1. 3,806 g = _____ kg _____ g

2. 8 kg 50 g = _____ g

3. 3,425 g = _____ kg _____ g

4. 1 kg 10 g = _____ g

5. 10,452 g = _____ kg _____ g



Express the answers in milliliters.

1. 21 L + 2 L 800 mL =

2. 4 L 485 mL – 323 mL =



Convert.

3. 11 L 342 mL = _____ mL

4. 16,783 mL = _____ L _____ mL



Concept (2): Time and Scaled Measurement

Lesson (4)

Measuring Time

Table 1	
Minutes	Seconds
1	60
2	
3	
4	
5	
6	
7	
8	
9	
10	

Table 2	
Hours	Minutes
1	60
2	
3	
4	
5	
6	
7	
8	
9	
10	

Table 3	
Days	Hours
1	24
2	
3	
4	
5	
6	
7	
8	
9	
10	

Table 4	
Weeks	Days
1	7
2	
3	
4	
5	
6	
7	
8	
9	
10	

Solve the conversion problems using the ratio tables above.

5. 10 hours 30 minutes = _____ minutes
6. 6 minutes 15 seconds = _____ seconds
7. 4 days 20 hours = _____ hours



Write the digital time that is shown on each analog clock.

1.



2.



3.





Lesson (5)

Elapsed Time

Solving Elapsed Time Problems Solve the problems and write the new time. Based on the examples shown to you by your teacher, try a few different strategies to solve the problems. Show your work.

1. $3:25 + 1:26 =$ _____
2. $3:25 + 45 \text{ minutes} =$ _____
3. $5:43 - 1:25 \text{ minutes} =$ _____
4. Jana and Maha have 5 hours to watch three movies that last 1 hour and 22 minutes; 2 hours and 12 minutes; and 1 hour and 57 minutes.

Do the girls have enough time to watch all three movies? How do you know?

The girls decide to just watch the two shortest movies. If they start watching them at 5:30 p.m., what time will their movies end?



5. A worker ant went out to find food for the colony. It left at 6:30 a.m. and returned at 7:42 a.m. How long was that ant looking for food?



Concept (3): Measurement All Around

Lesson (6)

Measuring the World around Me

1. The potatoes Aya bought weighed 2 kilograms 920 grams. Her onions weighed 1,075 grams less than the potatoes. How much did the potatoes and onions weigh together?



2. A pharaoh ant grows from egg to adult in 45 days. A carpenter ant grows from egg to adult in 12 weeks. Which species takes longer to grow from egg to adult? How much longer?



3. A fish tank with a capacity of 100 liters is filled with 20,000 milliliters of water. How many more liters of water are needed to fill it up completely?



4. Zeina purchased 8 kilograms of sugar, 10 kilograms of flour, 500 grams of cocoa, 225 grams of pecans, and 275 grams of coconut. What is the total mass of her groceries in kilograms?



Mr. Emad bought four 2-liter bottles of soda for the Primary 4 picnic. If there were 2 liters and 829 milliliters of soda remaining at the end of the party, how many milliliters of soda did the students drink?



Worker ants take power naps totaling up to 250 minutes a day. A queen ant may sleep up to 9 hours a day. Which ant sleeps longer and by how many minutes?



Ahmed has a 12-meter-long piece of wood. He wants to cut it into 3 equal lengths. How long should each cut piece be in meters? How long will each of these pieces be in centimeters?



Ayman is a runner. While Ayman is in training, he needs to drink 500 milliliters of water 4 times per day. How many liters of water will that be for 1 week?



Ehab is a weightlifter. He has a mass of 100 kilograms. His aim is to gain 500 grams per week. If he does that for 5 weeks, what will his mass be at the end?



Homework

Solve. Show your work.

1. $3:45 + 25 \text{ min} = \underline{\hspace{2cm}}$

2. $2:45 + 6:17 = \underline{\hspace{2cm}}$

3. $3:07 - 42 \text{ min} = \underline{\hspace{2cm}}$

4. $5:07 - 2:13 = \underline{\hspace{2cm}}$



5. An ant's first nap of the day began at 7:45 a.m. and lasted for 60 seconds. What time did the ant wake up?



6. The ant then worked in the colony for 3 hours and 13 minutes before its next nap. What time did the ant take his second nap?



A clock is shown.



What time does the clock show?

- A. 10:04
- B. 10:01
- C. 1:10
- D. 1:50



Bast's school day is 5 hours long. How can she find how long the school day is in minutes?

- A. multiply 5 by 60
- B. add 5 and 60
- C. multiply 5 by 24
- D. add 5 and 24



Bakari is going on a trip for 2 full days. How could he figure out how many hours he will be away?

- A. add 2 and 24
- B. multiply 2 by 24
- C. add 2 and 60
- D. multiply 2 by 60



Taher grew 10 centimeters in 1 year. He is now 1 meter 6 centimeters tall. How many centimeters tall was Taher 1 year ago?



An ant from Colony A walked 2 kilometers in a day. An ant from Colony B walked 3,000 meters in a day. Which ant walked the farthest and how much farther in kilometers did it walk?



Ali's cat weighs 7 kilograms and his dog weighs 17 kilograms. When Ali took them to the vet, he learned that his cat gained 450 grams and his dog gained 120 grams. How much do his two pets weigh in all now?



Rania is measuring two ant lines. Colony A's ant line is 30 centimeters long, and Colony B's ant line is 500 millimeters long. How many centimeters long are the two ant lines together?



Amany is a swimmer. She spends half an hour every day swimming. How many minutes in total does she swim for during a 5-day period?



Sara travelled 9 days continuously. She travelled 5,000 meters each day. How many kilometers did she walk in all?



Ants walk about 5,000 meters each day. How many kilometers do ants walk in 6 days?



Samira is studying for an upcoming math test. If she studies for 30 minutes a day, how many hours will she have spent studying in 8 days?



A colony of ants eats approximately 2,000 grams of food each day. If the ants have 10 kilograms of food stored, how many days will the food last?



An ant may walk up to 5 km per day. If the ant continues this for 20 days, how many meters will the ant walk?



MATHEMATICAL PRACTICE 1

Look for a Pattern Algebra Complete.

Liters	Milliliters
1	1,000
2	
3	
	4,000
5	
6	
	7,000
8	
9	
10	

Kilograms	Grams
1	1,000
2	
	3,000
4	
5	
6	
7	
	8,000
9	
10	

Complete.

8 kilograms = _____ grams

7 liters = _____ milliliters

MATHEMATICAL PRACTICE 4

Use Symbols Algebra Compare using <, >, or =.

1 kilogram ☐ 900 grams2 liters ☐ 2,000 milliliters

17. **WRITE** Math Jill has two rocks. One has a mass of 20 grams and the other has a mass of 20 kilograms. Which rock has the greater mass? Explain.
- _____
- _____
- _____

18. **THINK SMARTER** For numbers 18a–18c, choose Yes or No to tell whether the measurements are equivalent.

18a. 5,000 grams and 5 kilograms ☐ Yes ☐ No

18b. 300 milliliters and 3 liters ☐ Yes ☐ No

18c. 8 grams and 8,000 kilograms ☐ Yes ☐ No





UNIT

4

Theme 1 | Number Sense and Operations

Unit 4

Area and Perimeter

Photo Credit: izharov / iStock - Shutterstock.com

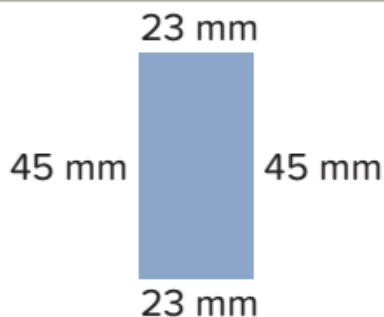
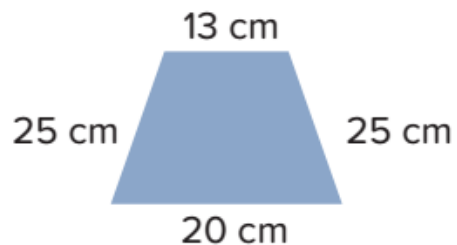
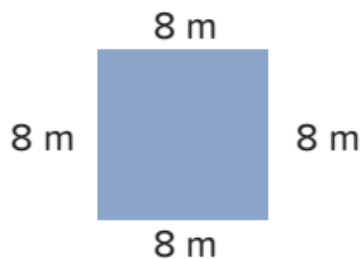
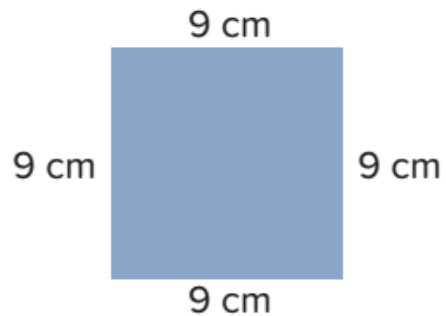
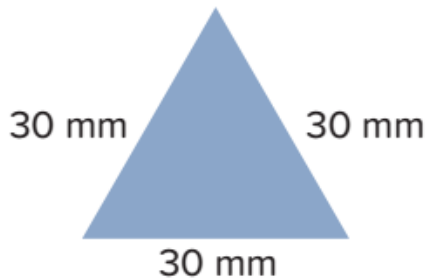
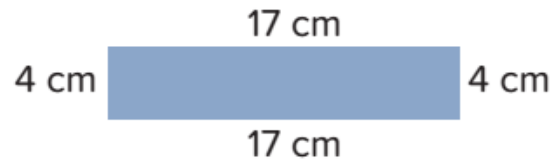
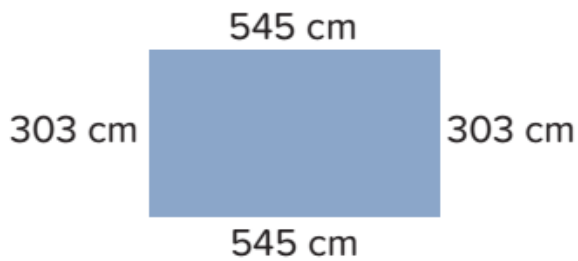


Concept (1): Explore Area and Perimeter

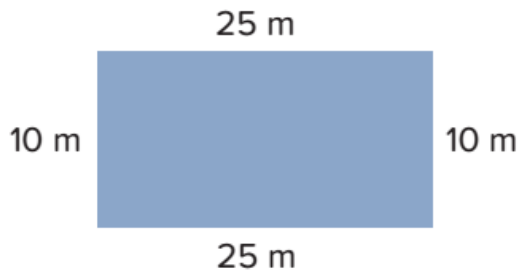
Lesson (1)

Calculating the Perimeter

Rectangle Review Compare the shapes in the boxes. Highlight or circle all of the rectangles and place a star on the squares.



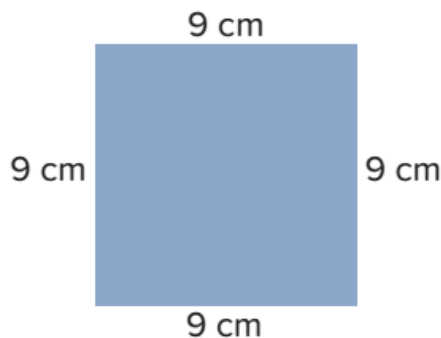
A group of worker ants are in search of food. They secrete pheromones (chemicals) to lay a scent trail. They follow each other in a line around a building. Using the model that follows, what is the perimeter of the building?



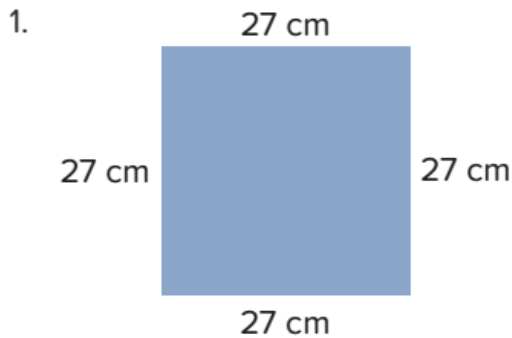
Use the $P = l + w + l + w$ formula to calculate the perimeter of the shapes. Show your work.



Use the $P = l + w + l + w$ formula to calculate the perimeter of the shapes. Show your work.

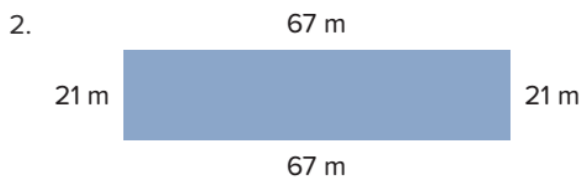


Foraging for Formulas Calculate the perimeter of the shapes that follow. Use two different formulas to solve each problem. Show your work.



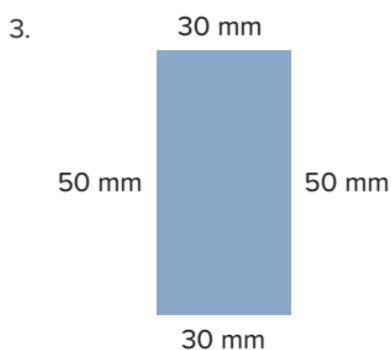
Formula 1: _____

Formula 2: _____



Formula 1: _____

Formula 2: _____



Formula 1: _____

Formula 2: _____

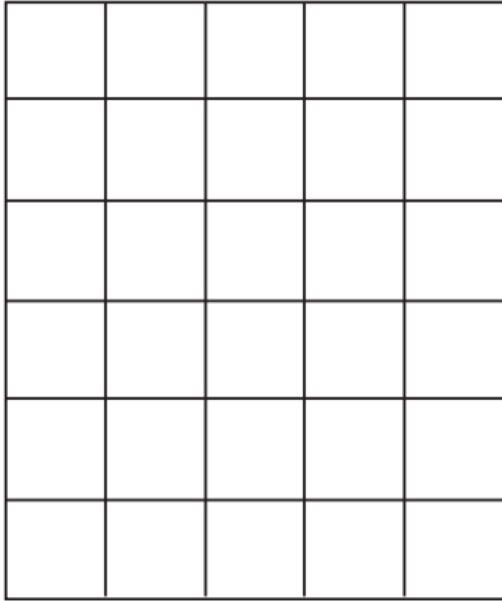


Lesson (2)

Calculating the Area

Area Review Determine the area of the rectangles. Show your work.

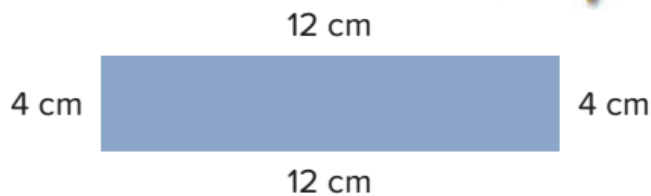
1.



Area = _____



2.

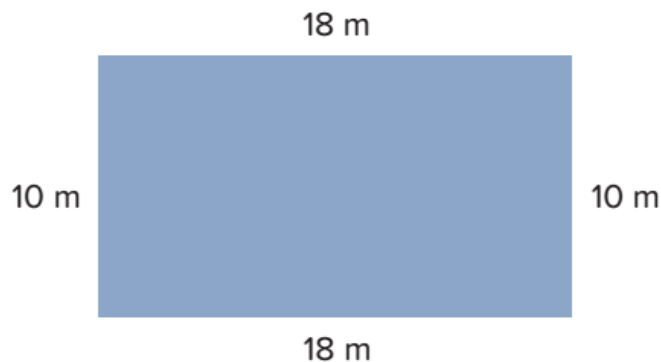


Area = _____

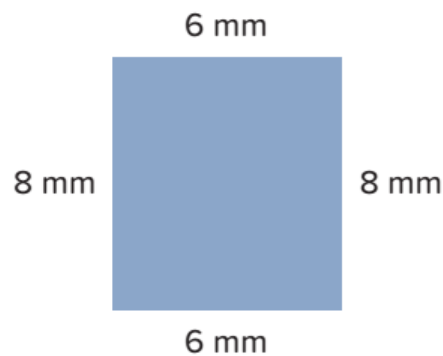


Area Practice Solve the problems. Show your work and label your answers.

1. Find the area.



2. Find the area.



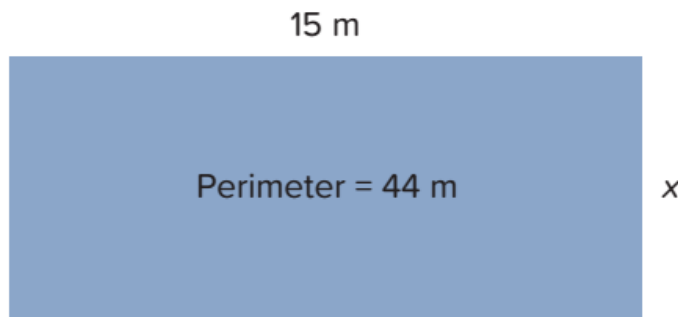
For a science project, two students are creating an ant farm enclosure. Their enclosure will be 5 meters long and 2 meters wide. Sketch the enclosure and label the dimensions. Then, find the perimeter and area.



The area of a rectangular bakery is 30 square meters. What could the perimeter be? Sketch your answer and label the dimensions.

**Lesson (3)****Missing Dimensions**

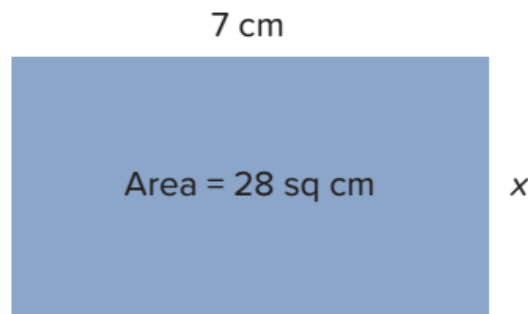
Find the unknown side length based on the perimeter given.



$x =$ _____



Find the unknown side length based on the area given.

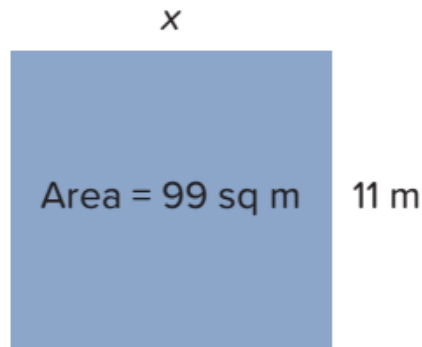


$x =$ _____





Find the unknown side length based on the area given.

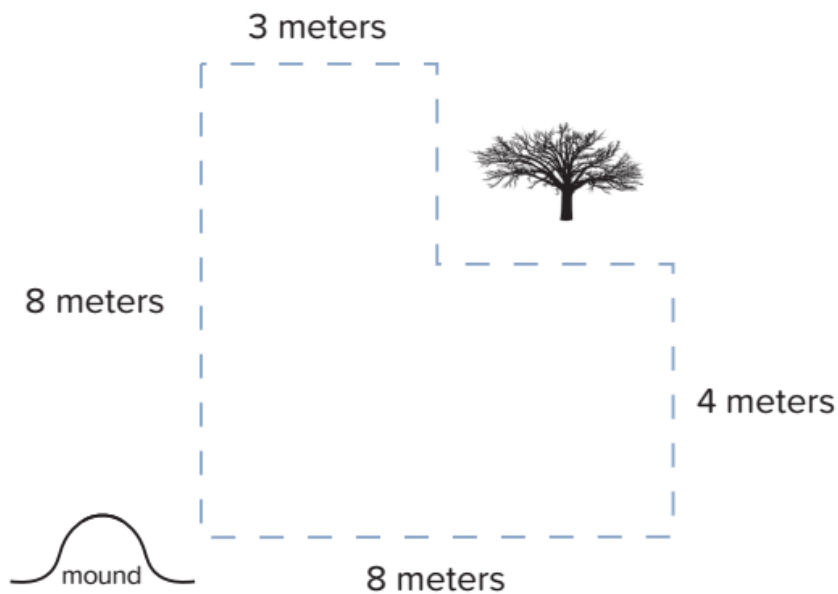


$x =$ _____



Lesson (4)

Odd Shapes



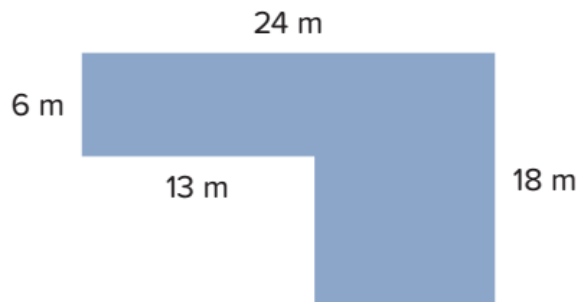
Perimeter = _____

Area = _____



Calculating Crazy Shapes Solve each problem.

1. Divide this shape into smaller rectangles or squares. Then, calculate its area and perimeter. Show your work.

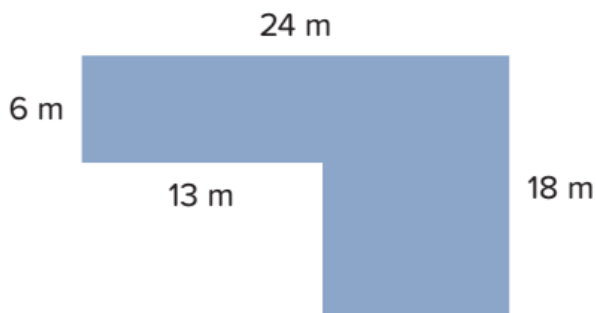


Area = _____

Perimeter = _____



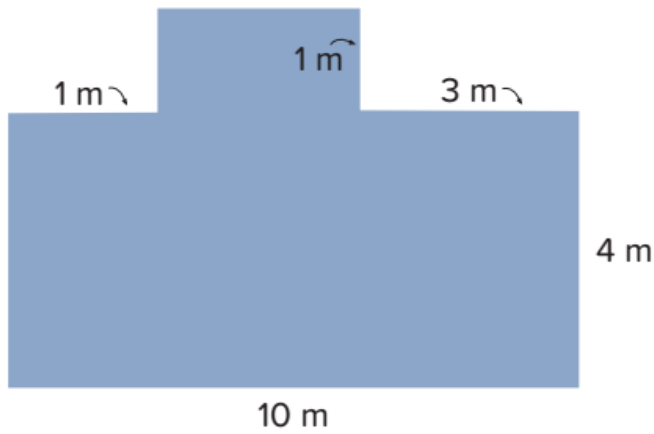
2. Divide the shape in a different way and calculate its area and perimeter. Show your work.



Area = _____

Perimeter = _____



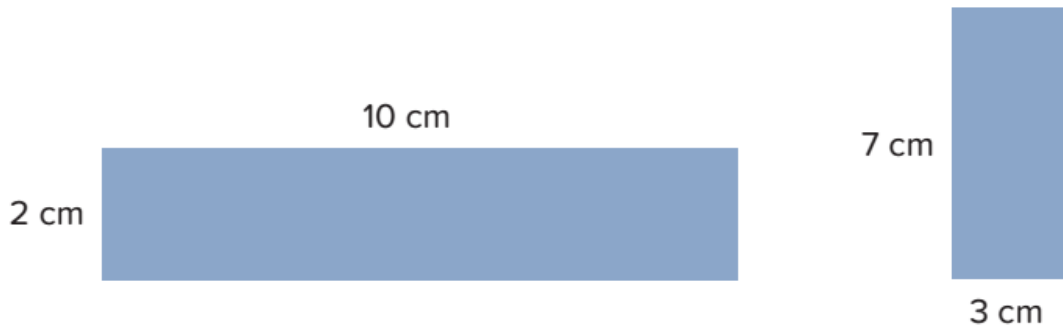


Area = _____

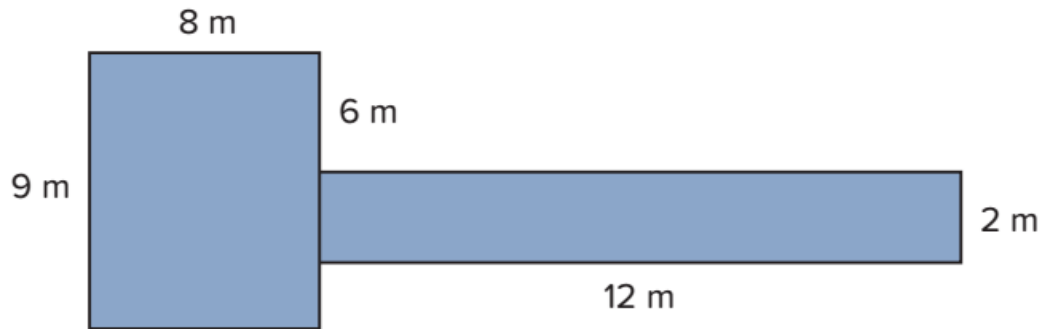
Perimeter = _____



Combine these two simple shapes into a complex shape.
Sketch your shape, labeling the sides. Then, calculate the area
and perimeter of the complex shape.



Calculate the area and perimeter.

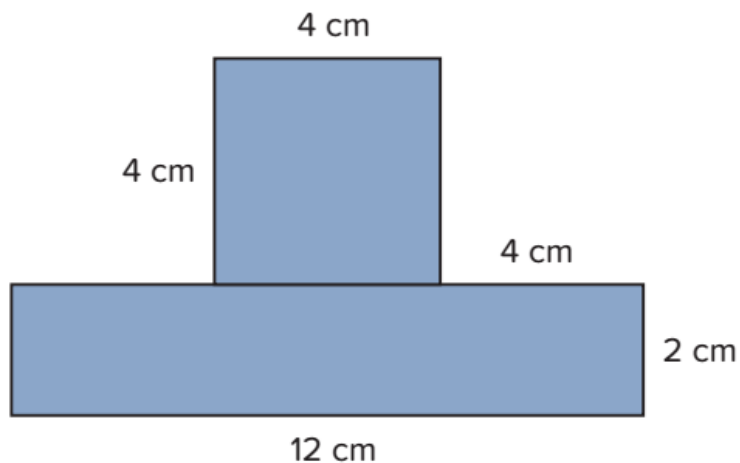


Area = _____

Perimeter = _____



Calculate the area and perimeter.



Area = _____

Perimeter = _____



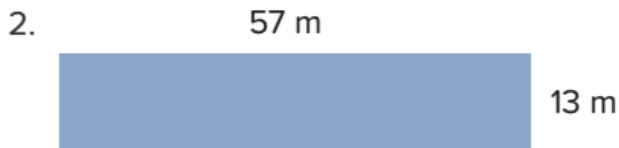
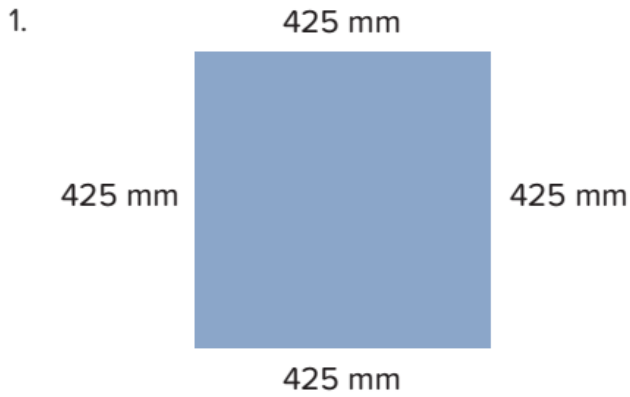
The summary

	Rectangle	Square
Area	$A = L \times W$	$A = L \times L$
Perimeter	$P = (L + W) \times 2$	$P = L \times 4$



Homework

Find the perimeter. Show your work.

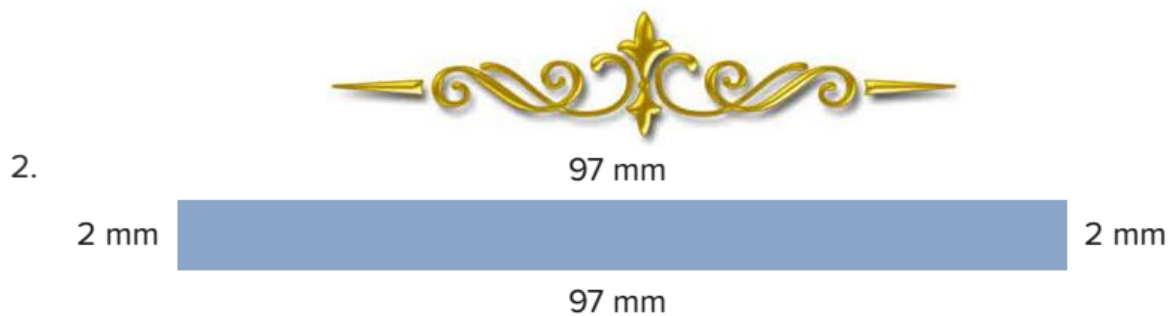
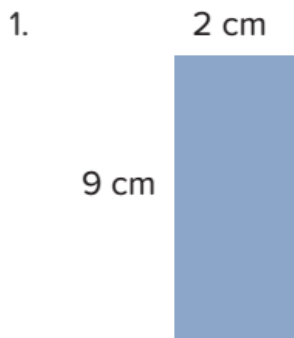


3. Sherif is building a square picture frame. Each side will be 36 millimeters long. What will the perimeter of the frame be?

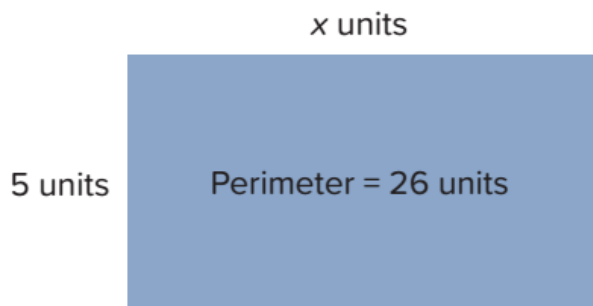
4. Omar is building a rectangular fence around his garden. The length is 8 meters and the width is 6 meters. How many meters of fencing will he need to build?



Find the area and perimeter of the rectangles. Show your work and label your answers.



Mystery Dimension Work with a partner to answer the questions about the rectangles.



1. What is known about this rectangle?

2. What is unknown about this rectangle?



10 units

Area = 50 square units

x units

What is known about this rectangle?

What is unknown about this rectangle?



6 cm

3 cm

1 cm

8 cm

Area = _____

Perimeter = _____



Choose the correct answer:

1	The perimeter of a square = A) $L \times L$ B) $L \times 4$ C) $L \times W$ D) $(L+W) \times 2$
2	The area of a square = A) $L \times L$ B) $L \times 4$ C) $L \times W$ D) $(L+W) \times 2$
3	The perimeter of a rectangle = A) $L \times L$ B) $L \times 4$ C) $L \times W$ D) $(L+W) \times 2$
4	The area of a rectangle = A) $L \times L$ B) $L \times 4$ C) $L \times W$ D) $(L+W) \times 2$
5	The perimeter of a square of side length is 3 cm = cm A) 12 B) 20 C) 16 D) 28
6	The perimeter of a square of side length is 5 cm = cm A) 12 B) 20 C) 16 D) 28
7	The perimeter of a square of side length is 4 cm = cm A) 12 B) 20 C) 16 D) 28
8	The perimeter of a square of side length is 7 cm = cm A) 12 B) 20 C) 16 D) 28
9	The area of a square of side length is 3 cm = A) 9 cm B) 9 cm^2 C) 12 cm^2 D) 12 cm
10	The area of a square of side length is 4 cm = cm^2 A) 8 B) 16 C) 36 D) 81
11	The area of a square of side length is 5 cm = A) 25 cm B) 25 cm^2 C) 20 cm^2 D) 20 cm
12	The area of a square of side length is 6 cm = cm^2 A) 36 B) 24 C) 60 D) 12
13	The side length of a square of perimeter is 24 cm = cm^1 A) 9 B) 4 C) 5 D) 6
14	The side length of a square of perimeter is 36 cm = cm^1 A) 9 B) 4 C) 5 D) 7





UNIT

5

Theme 2 | Mathematical Operations and
Algebraic Thinking

Unit 5 Multiplication as a Relationship



Concept (1): Multiplicative Comparisons

Lesson (1)

Understanding Multiplicative Comparison

1. Compare 10 and 2. 10 is _____ times greater than 2.
2. Compare 12 and 3. 12 is _____ times greater than 3.
3. Compare 18 and 6. 18 is _____ times greater than 6.



Which statement is an example of a multiplicative comparison?

- A. A camel is 3 meters in length. A crocodile is 2 meters longer than a camel.
- B. A camel can weigh up to 1,000 kilograms. This is twice as much as a crocodile weighs.
- C. Crocodiles have 64 teeth. Camels have 32 fewer teeth than crocodiles.
- D. There are about 30,000 crocodiles in Egypt. There are about 60,000 more camels in Egypt.



Rewrite each equation using multiplication.

1. $6 + 6 + 6 = 18$ _____
2. $2 + 2 + 2 + 2 + 2 + 2 + 2 = 14$ _____



Fill in the blanks to complete the multiplicative comparison statement for each tape diagram.

3.

5	5	5	5
---	---	---	---

_____ is _____ times greater than 5.

4.

8	8	8
---	---	---

_____ is _____ times greater than 8.



A building is 20 meters tall. A bridge is 5 meters tall. The building is how many times taller than the bridge?

- A. 3
- B. 4
- C. 15
- D. 100



Akil is twice as old as his brother. His brother is 8 years old. Which two equations can be used to find Akil's age?

- A. $2 + a = 8$
- B. $2 \times a = 8$
- C. $2 \times 8 = a$
- D. $8 + 2 = a$
- E. $8 + 8 = a$



Lesson (2)

Creating Multiplicative Comparison Equations

Multiplying to Show Comparisons Write an equation based on the comparison statement. Use a letter to represent the unknown number. You do not have to solve the equations.

1. 4 times greater than 3 is _____
2. 18 is 6 times as many as _____
3. 2 times greater than 7 is _____
4. 24 is 4 times as great as _____
5. 25 is 5 times as many as _____



Lesson (3)

Solving Multiplicative Comparison Equations

How Many Seats? Use the information in the table to compare numbers of seats in different modes of transportation. Then, enter and solve an equation for each comparison.

Mode of Transportation	Number of Seats
Bicycle	1
Motorbike	2
Car	4
Truck	6
Bus	36
Metro Train	48

1. How many times as many seats are in a truck than on a motorbike?

Equation: _____

Answer: _____

2. How many times as many seats are on a bus than in a truck?

Equation: _____

Answer: _____

3. How many times as many seats are on the metro train than in a car?

Equation: _____

Answer: _____

4. A metro train can fit how many times more people than a truck?

Equation: _____

Answer: _____

5. A bus has how many times more seats than a car?

Equation: _____

Answer: _____



Homework

1. Compare 15 and 3. 15 is _____ times greater than 3.
2. Compare 28 and 7. 28 is _____ times greater than 7.
3. Compare 27 and 9. 27 is _____ times greater than 9.



Khepri and her sister peeled oranges. Khepri peeled 6 oranges. Khepri's sister peeled 3 times as many oranges as Khepri. Which equation can be solved to find the number of oranges that Khepri's sister peeled?

- A. $6 + 3 = n$
- B. $6 \times 3 = n$
- C. $n + 3 = 6$
- D. $n \times 3 = 6$



A fish tank has 3 red fish and 17 times as many blue fish. How many blue fish are in the tank?

- A. 20
- B. 31
- C. 17
- D. 51



Write an equation for each of the following comparisons, and then solve.

1. What number is 5 times greater than 6?

2. 36 is 4 times more than what number?

3. Ayman ate 4 figs in the morning. His older brother ate 3 times as many. How many figs did his brother eat?



Concept (2)

Properties and Patterns of Multiplication

Lesson (4)

Commutative Property of Multiplication



Arrays and the Commutative Property

Array Equation 1: $\underline{2} \times \underline{4} = \underline{\quad} \times \underline{\quad}$

Array Equation 2: $\underline{3} \times \underline{7} = \underline{\quad} \times \underline{\quad}$

Array Equation 3: $\underline{5} \times \underline{9} = \underline{\quad} \times \underline{\quad}$

Array Equation 4: $\underline{6} \times \underline{8} = \underline{\quad} \times \underline{\quad}$

Array Equation 5: $\underline{1} \times \underline{3} = \underline{\quad} \times \underline{\quad}$



Apply the Commutative Property of Multiplication to complete each equation.

1. $5 \times 7 = \underline{\quad} \times 5$

2. $20 \times \underline{\quad} = 6 \times 20$



Which equation would be best to include in an explanation of the Commutative Property of Multiplication?

- A. $3 \times 5 = 5 \times 3$
- B. $4 \times 16 = (4 \times 11) + (4 \times 5)$
- C. $(6 \times 4) \times 2 = 6 \times (4 \times 2)$
- D. $5 \times 1 = 5$



Lesson (5)

Patterns of Multiplying by 10s

Which number is the result of multiplying a single-digit number by 10?

- A. 14
- B. 80
- C. 400
- D. 810

Products

$$1 \times 10 = 10$$

$$5 \times 10 = 50$$

$$9 \times 10 = 90$$

$$13 \times 10 = 130$$

$$17 \times 10 = 170$$

$$21 \times 10 = 210$$



Mental Math Number Talk Look at the problems below. Solve them mentally (without writing anything down).

1. 5×1
2. 12×1
3. 672×1
4. 8×0
5. 16×0
6. 758×0



Which equation shows how to apply the Associative Property of Multiplication to determine the value of $3 \times (2 \times 10)$?

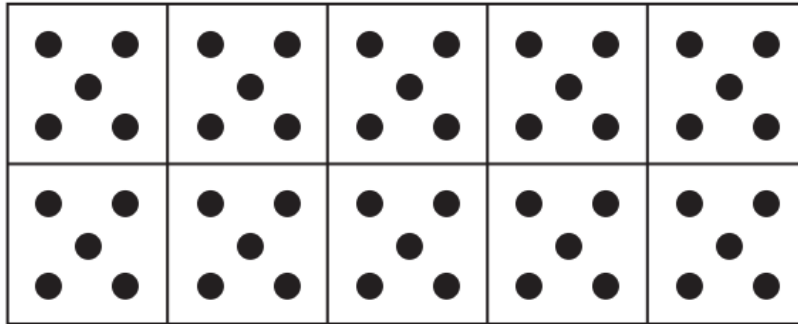
- A. $5 \times 10 = 50$
- B. $6 \times 10 = 60$
- C. $3 \times 20 = 320$
- D. $3 \times 12 = 36$



Lesson (6)

Exploring More Patterns in Multiplication

Dot Card Number Talk Look at the image. How many dots do you see in the image below? How did you come up with your answer?



Uncovering the Associative Property of Multiplication Solve the problem assigned by your teacher.

Problem 1: $3 \times 2 \times 4 = \underline{\hspace{2cm}}$

Problem 2: $4 \times 2 \times 3 = \underline{\hspace{2cm}}$



Applying the Associative Property of Multiplication Work with a partner to solve the problems. Place parentheses around the factors that you will multiply first. Rewrite the factors in another order if helpful.

1. $3 \times 2 \times 5 = \underline{\hspace{2cm}}$

2. $4 \times 6 \times 2 = \underline{\hspace{2cm}}$

3. $2 \times 9 \times 3 = \underline{\hspace{2cm}}$

4. $3 \times 2 \times 3 = \underline{\hspace{2cm}}$



Solve each problem. Multiply the part in the parentheses first.
Show your work.

1. $(2 \times 3) \times 4 =$ _____

2. $(5 \times 2) \times 3 =$ _____

3. $2 \times (3 \times 4) =$ _____

4. $5 \times (2 \times 3) =$ _____



Write how many Tens make up each number.

7. $30 =$ _____ Tens

8. $80 =$ _____ Tens

9. $160 =$ _____ Tens

10. $140 =$ _____ Tens

11. $120 =$ _____ Tens

12. $110 =$ _____ Tens



Decompose each multiple of 10, 100, or 1,000 before multiplying.
Draw parentheses around the numbers you would multiply first,
and then write the answer.

1. $5 \times 70 =$ _____

2. $8 \times 30 =$ _____

3. $4 \times 40 =$ _____

Solve using a strategy you prefer.

4. $6 \times 90 =$



Homework

Apply the Commutative Property of Multiplication to find the unknown value.

3. $33 \times 4 = 4 \times a$ _____

4. $b \times 9 = 9 \times 8$ _____



Which equation would be best to include in an explanation of the Associative Property of Multiplication?

- A. $(9 \times 12) \times 0 = 0$
- B. $(4 \times 6) \times 1 = 4 \times 6$
- C. $(3 \times 7) \times 2 = 3 \times (7 \times 2)$
- D. $(11 \times 8) \times 9 = 9 \times (11 \times 8)$



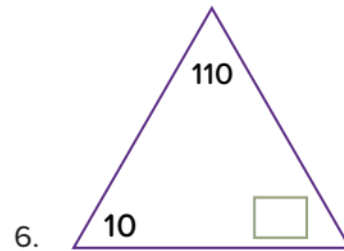
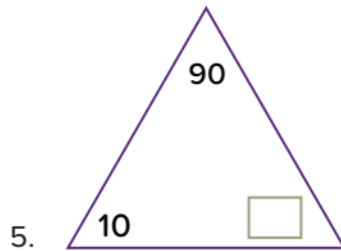
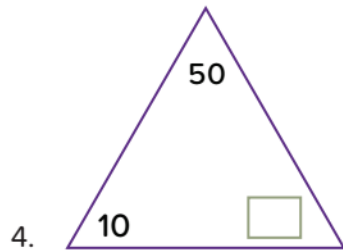
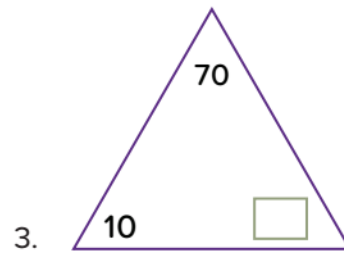
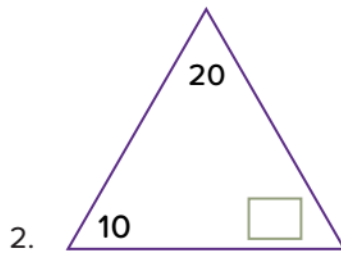
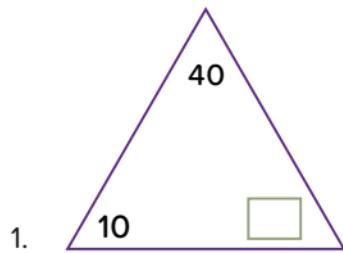
Place parentheses to show one way to find the product. Then, show one other way to use parentheses to find the product.

5. $5 \times 4 \times 2$

6. $3 \times 6 \times 2$



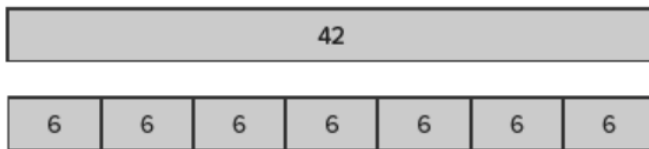
Decomposing Multiples of 10 Decompose each number into a factor pair with 10. Write the missing factor in the box.



Choose the *best* numbers to complete the equation.

6	7	36	42
---	---	----	----

A model is shown.



Which equation is best represented by this model?

$6 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$





UNIT

6

Theme 2 | Mathematical Operations and
Algebraic Thinking

Unit 6

Factors and Multiples

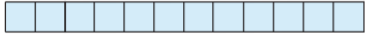


Concept (1): Understanding Factors

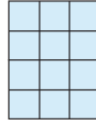
Lesson (1)

Identifying Factors of Whole Numbers

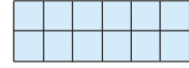
1. Use the arrays to name the factors of 12.



$$\underline{\quad} \times \underline{\quad} = 12$$



$$\underline{\quad} \times \underline{\quad} = 12$$



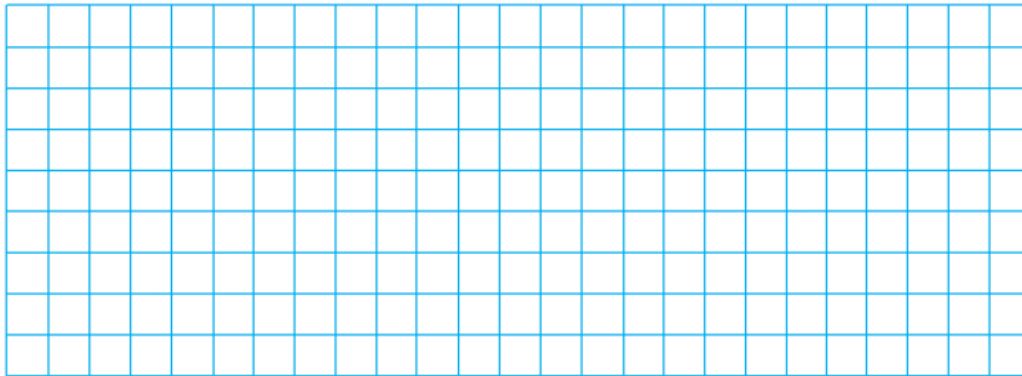
$$\underline{\quad} \times \underline{\quad} = 12$$

The factors of 12 are 1, , 3, , 6, and .

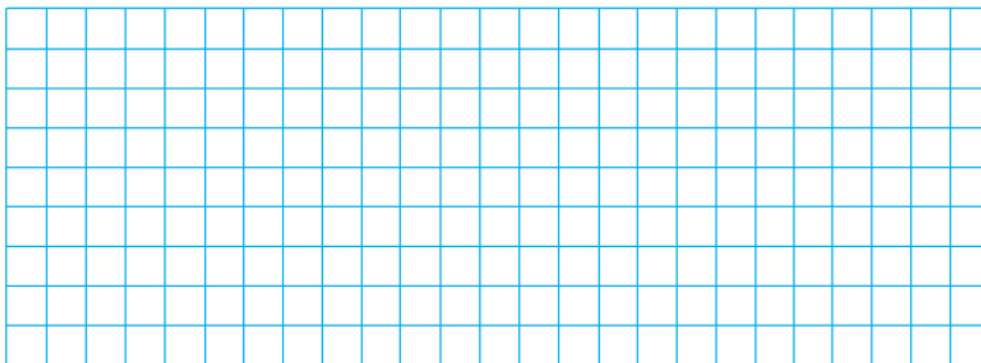


Use tiles to find all the factors of the product. Record the arrays and write the factors shown.

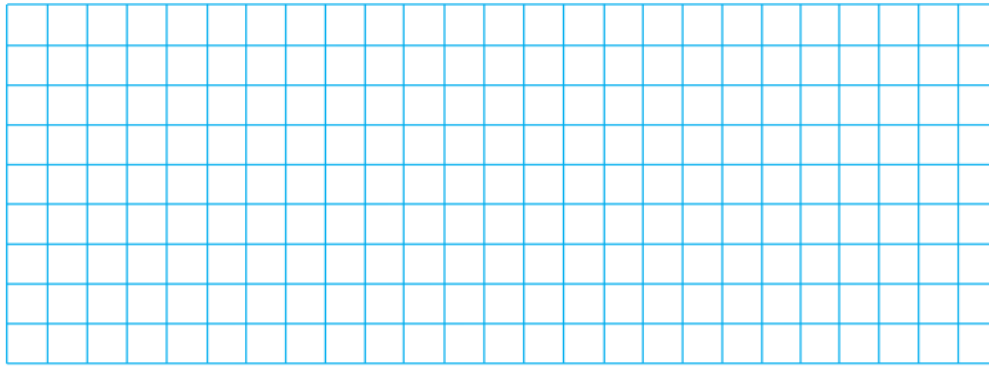
2. 5:



3. 20:



4. 25: _____



Count by 2s. Shade the numbers that you say as you count.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Count by 5s. Shade the numbers that you say as you count.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Count by 10s. Shade the numbers that you say as you count.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



Determine if the given number has 2 as a factor, 5 as a factor, or 10 as a factor. Circle yes or no.

	Number	Is 2 a factor?		Is 5 a factor?		Is 10 a factor?	
1	26	Yes	No	Yes	No	Yes	No
2	70	Yes	No	Yes	No	Yes	No
3	15	Yes	No	Yes	No	Yes	No
4	17	Yes	No	Yes	No	Yes	No



THINK SMARTER

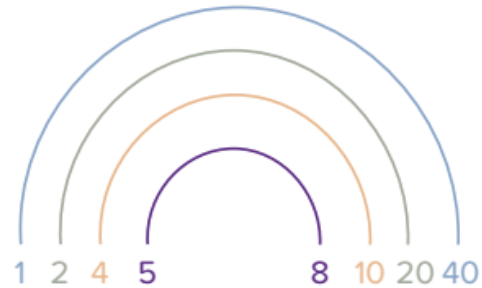
Sarah was organizing vocabulary words using index cards. She arranged 40 index cards in the shape of a rectangle on a poster. For 14a–14e, choose Yes or No to tell whether a possible arrangement of cards is shown.

- 14a. 4 rows of 10 cards ☐ Yes ☐ No 14d. 40 rows of 1 card ☐ Yes ☐ No
 14b. 6 rows of 8 cards ☐ Yes ☐ No 14e. 35 rows of 5 cards ☐ Yes ☐ No
 14c. 20 rows of 2 cards ☐ Yes ☐ No



Show students how to create a T-chart using the factors of 40.

1	40
2	20
4	10
5	8



Finding Factor Pairs Work with your teacher to create a factor rainbow and T-chart for 40.

1. List the factors of 40.

Factor Rainbow

T-Chart



2. List the factors of 36. There are 5 factor pairs.

Factor Rainbow

T-Chart



3. List the factors of 20. There are 3 factor pairs.

Factor Rainbow

T-Chart



Lesson (2)

Prime and Composite Numbers

- The prime number is a whole number that **has only 2 factors**.
- The prime number is **divisible only by 1 and itself**.
- 2 is the **smallest** prime number.
- 3 is the **smallest odd** prime number.
- 2 is the **only even prime** number.
- All prime numbers are odd except 2

Prime Numbers less than 100:

2	3	5	7
11	13	17	19
23	29		
31	37		
41	43	47	
53	59		
61	67		
71	73	79	
83	89		
97			



Lesson (3)

Greatest Common Factor (GCF)

A class is going on a field trip. There are 36 girls and 27 boys in the class. Students will be divided into groups of girls and groups of boys. What is the greatest number of groups that can be made so that each group has the same number of children? How many children will be in each group of boys? How many children will be in each group of girls?



Find the greatest common factor (GCF) of the given numbers.

4. 40 and 48

5. 12 and 18

6. 10 and 45



Homework

Highlight or circle the factors of the numbers listed.

1. 15: 2 5 10
2. 30: 2 5 10
3. 12: 2 5 10
4. 25: 2 5 10
5. 36: 2 5 10



List all of the factors of each number. You may create a factor tree, factor rainbow, or factor T-chart.

6. 25:
7. 19:
8. 48:
9. 16:



Is 9 a factor of the number? Write *yes* or *no*.

6. 54

7. 63

8. 67

9. 93



Color the prime numbers in red:

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



List all the factors of each number. Then, write if the number is prime or composite.

1. 14

4. 59

2. 46

5. 50

3. 22

6. 29



Choose the best words or numbers to complete each statement.

correct	1, 2, 3, 6	1, 2, 3, 6	3
incorrect	1, 2, 3, 6, 9, 18	1, 2, 3, 6, 9, 18	6
	1, 2, 3, 4, 6, 8, 12, 24	1, 2, 3, 4, 6, 8, 12, 24	12

Femi said the greatest common factor of 18 and 24 was 12.

Femi was _____ because the factors of 18 are

_____ and the factors of 24 are

_____. The greatest common factor of

18 and 24 is _____.



Concept (2): Understanding Multiples

Lesson (4)

Identifying Multiples of Whole Numbers

The product of two numbers is a multiple of each number. Factors and multiples are related.

$$\begin{array}{ccccccc} 3 & \times & 4 & = & 12 \\ \uparrow & & \uparrow & & \uparrow \\ \text{factor} & & \text{factor} & & \text{multiple of 3} \\ & & & & \text{multiple of 4} \end{array}$$

Is the number a multiple of 6? Write *yes* or *no*.

6. 3

7. 6

8. 16

9. 18

Is the number a multiple of 3? Write *yes* or *no*.

10. 4

11. 8

12. 24

13. 38

MATHEMATICAL PRACTICE 8

Generalize Algebra Find the unknown number.

15. 12, 24, 36, _____

16. 25, 50, 75, 100, _____



Lesson (5)

Common Multiples

14. List the next nine multiples of each number. Find the common multiples.

Multiples of 2: 2, _____

Multiples of 8: 8, _____

Common multiples: _____



PRACTICE

1. Find a common multiple of 4 and 8:

2. Find a common multiple of 7 and 3:

3. Find two common multiples of 2 and 6:

4. Find two common multiples of 4 and 6

5. Which is a common multiple of 5 and 8: 20, 40, 35

6. Which is NOT a common multiple of 9 and 6: 18, 27, 36



Lesson (6)

Relationships between Factors and Multiples

Think about the relationships between the numbers in each group.
Write at least two sentences describing what you notice.

1. 3, 6, and 12

2. 4, 8, 16, and 24

3. How are factors and multiples related?

Which list of numbers are all common multiples of 3 and 7?

- A. 1, 3, 7
B. 21, 42, 63
C. 21, 28, 35
D. 15, 21, 27



Is 27 a multiple of 9?

- A. yes, because factors of 27 are 3 and 9
B. no, because factors of 9 are 1 and 9
C. no, because multiples of 27 are 9 and 243
D. yes, because multiples of 27 are 9 and 3



Bes thinks 12 is a factor of 36. Is he correct?

- A. no, because 36 is not a factor of 12
- B. yes, because 12 is not a multiple of 36
- C. no, because 12 and 36 are evenly divisible by 2
- D. yes, because 12 can be evenly multiplied to equal 36

**THINK SMARTER**

For numbers 29a–29e, select True or False for each statement.

- | | | |
|--|----------------------------|-----------------------------|
| 29a. The number 45 is a multiple of 9. | <input type="radio"/> True | <input type="radio"/> False |
| 29b. The number 4 is a multiple of 16. | <input type="radio"/> True | <input type="radio"/> False |
| 29c. The number 28 is a multiple of 4. | <input type="radio"/> True | <input type="radio"/> False |
| 29d. The number 4 is a factor of 28. | <input type="radio"/> True | <input type="radio"/> False |
| 29e. The number 32 is a factor of 8. | <input type="radio"/> True | <input type="radio"/> False |



Homework

Choose the correct answer:

- 1 Number of factors of 3 is
A) 2 B) 3 C) 4 D) 5

- 2 Number of factors of 8 is
A) 2 B) 3 C) 4 D) 5

- 3 Number of factors of 9 is
A) 2 B) 3 C) 4 D) 5

- 4 The number 12 has factors
A) 3 B) 4 C) 5 D) 6

- 5 3 is a factor of
A) 35 B) 20 C) 27 D) 31

- 6 3 is a factor of
A) 18 B) 20 C) 25 D) 31

- 7 is a factor of 6
A) 2 B) 5 C) 7 D) 9

- 8 is a factor of 12
A) 5 B) 3 C) 9 D) 10

- 9 The number that is divisible by 2 is called
A) Odd B) Even C) Prime D) Otherwise

- 10 The number that has only two factors is
A) 2 B) 10 C) 6 D) 9

- 11 The smallest even prime number is
A) 0 B) 1 C) 2 D) 3

- 12 Is a prime number.
A) 4 B) 6 C) 8 D) 7

- 13 Is a prime number.
A) 11 B) 6 C) 8 D) 10



- 14 From the prime numbers
A) 31 B) 10 C) 12 D) 16
-
- 15 Is a prime factor of 10
A) 1 B) 6 C) 5 D) 10
-
- 16 Is a prime number between 30 and 40 is
A) 33 B) 35 C) 37 D) 39
-
- 17 Is a prime number between 32 and 40 is
A) 33 B) 35 C) 37 D) 39
-
- 18 The number whose prime factors are 2 , 2 , 2 and 3 is
A) 20 B) 22 C) 24 D) 28
-
- 19 Number of factors of 4 is
A) 2 B) 3 C) 4 D) 5
-
- 20 Number of factors of 11 is
A) 2 B) 3 C) 4 D) 5
-
- 21 The number 18 has factors
A) 3 B) 4 C) 5 D) 6
-
- 22 5 is a factor of
A) 25 B) 8 C) 16 D) 24
-
- 23 is a factor of 6
A) 10 B) 1 C) 7 D) 9
-
- 24 is a factor of 12
A) 5 B) 7 C) 4 D) 10
-
- 25 The number that has only two factors is
A) 12 B) 7 C) 6 D) 9
-
- 26 The only even prime number is
A) 0 B) 1 C) 2 D) 3



For numbers 12a–12e, select True or False for each statement.

12a. The number 36 is a multiple of 9.

☐ True

☐ False

12b. The number 3 is a multiple of 9.

☐ True

☐ False

12c. The number 54 is a multiple of 9.

☐ True

☐ False

12d. The number 3 is a factor of 9.

☐ True

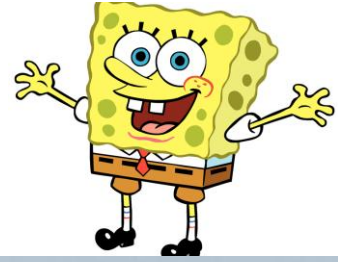
☐ False

12e. The number 27 is a factor of 9.

☐ True

☐ False





UNIT

7

Theme 2 | Mathematical Operations and
Algebraic Thinking

Unit 7

Multiplication and Division: Computation and Relationships



1	1	1	1	1	1	1	1	1	1	1	1
× 1	× 2	× 3	× 4	× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12
1	2	3	4	5	6	7	8	9	10	11	12

2	2	2	2	2	2	2	2	2	2	2	2
× 2	× 3	× 4	× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12	
4	6	8	10	12	14	16	18	20	22	24	

3	3	3	3	3	3	3	3	3	3	3	3
× 3	× 4	× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12		
9	12	15	18	21	24	27	30	33	36		

4	4	4	4	4	4	4	4	4	4	4	4
× 4	× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12			
16	20	24	28	32	36	40	44	48			

5	5	5	5	5	5	5	5	5	5	5	5
× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12				
25	30	35	40	45	50	55	60				

6	6	6	6	6	6	6	6	6	6	6	6
× 6	× 7	× 8	× 9	× 10	× 11	× 12					
36	42	48	54	60	66	72					

7	7	7	7	7	7	7	7	7	7	7	7
× 7	× 8	× 9	× 10	× 11	× 12						
49	56	63	70	77	84						

8	8	8	8	8	8	8	8	8	8	8	8
× 8	× 9	× 10	× 11	× 12							
64	72	80	88	96							

9	9	9	9	9	9	9	9	9	9	9	9
× 9	× 10	× 11	× 12								
81	90	99	108								

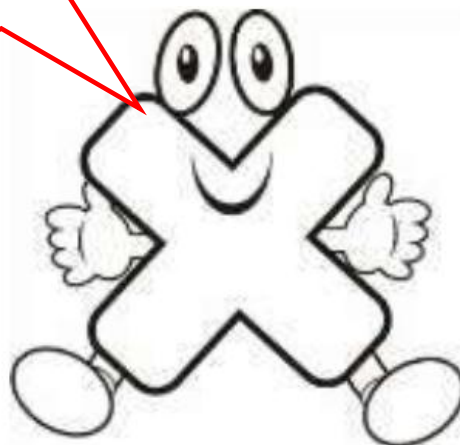
10	10	10	10	10	10	10	10	10	10	10	10
× 10	× 11	× 12									
100	110	120									

11	11	11	11	11	11	11	11	11	11	11	11
× 11	× 12										
121	132										

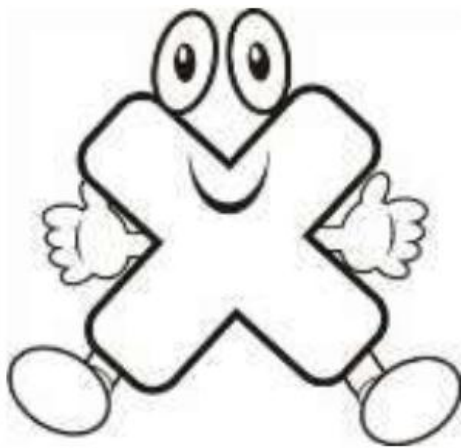
12	12	12	12	12	12	12	12	12	12	12	12
× 12											
144											

If you do not memorize well, there is no need to continue.

If you do not
memorize
well, there
is no need
to continue.



1	1	1	1	1	1	1	1	1	1	1	1
× 1	× 2	× 3	× 4	× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12
2	2	2	2	2	2	2	2	2	2	2	2
× 2	× 3	× 4	× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12	
3	3	3	3	3	3	3	3	3	3	3	3
× 3	× 4	× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12		
4	4	4	4	4	4	4	4	4	4	4	4
× 4	× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12			
5	5	5	5	5	5	5	5	5	5	5	5
× 5	× 6	× 7	× 8	× 9	× 10	× 11	× 12				
6	6	6	6	6	6	6	6	6	6	6	6
× 6	× 7	× 8	× 9	× 10	× 11	× 12					
7	7	7	7	7	7	7	7	7	7	7	7
× 7	× 8	× 9	× 10	× 11	× 12						
8	8	8	8	8	8	8	8	8	8	8	8
× 8	× 9	× 10	× 11	× 12							
9	9	9	9	9	9	9	9	9	9	9	9
× 9	× 10	× 11	× 12								
10	10	10	10	10	10	10	10	10	10	10	10
× 10	× 11	× 12									
11	11	11	11	11	11	11	11	11	11	11	11
× 11	× 12										
12	12	12	12	12	12	12	12	12	12	12	12
× 12											



Concept (1)

Multiplying by 1-Digit and 2-Digit Factors

Lesson (1)

The Area Model Strategy



Twenty-two passengers can fit on each river bus at a time.
What is the maximum number of passengers the river bus can carry if it makes 5 trips?



Decomposing Numbers Fill in the missing number for each decomposition.

1. $536 = 500 + \underline{\hspace{2cm}} + 6$

2. $1,275 = \underline{\hspace{2cm}} + 200 + 70 + 5$

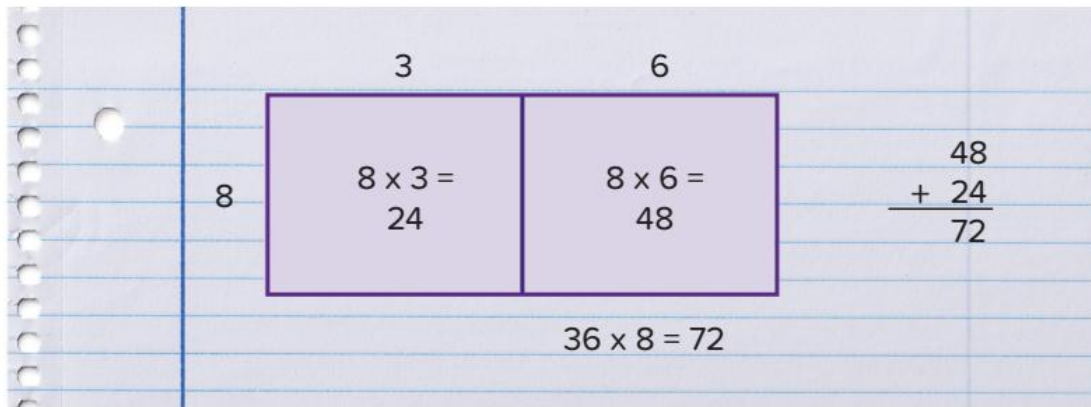
3. $264 = 60 + 4 + \underline{\hspace{2cm}}$

4. $7,625 = 5 + 7,000 + 20 + \underline{\hspace{2cm}}$

5. $357 = 50 + \underline{\hspace{2cm}} + 7$



A student solved the problem 36×8 in the following way:



Is that true? Why?



Lesson (2)

The Distributive Property

The Distributive Property and Area Models Use the area model to solve each problem.

1. 249×5

2. $4,734 \times 5$

3. 530×7

4. $2,391 \times 8$



Lesson (3)

The Partial Products Algorithm

Example:

$$\begin{array}{r}
 731 \\
 \times 4 \\
 \hline
 2,800 \text{ (} 700 \times 4 \text{)} \\
 120 \text{ (} 30 \times 4 \text{)} \\
 + 4 \text{ (} 1 \times 4 \text{)} \\
 \hline
 2,924
 \end{array}$$

$$\begin{array}{r}
 239 \\
 \times 7 \\
 \hline
 1,400 \text{ (} \underline{7} \times \underline{200} \text{)} \\
 210 \text{ (} \underline{7} \times \underline{30} \text{)} \\
 + 63 \text{ (} \underline{7} \times \underline{9} \text{)} \\
 \hline
 1,673
 \end{array}$$



Problem	Partial Products
7×59	
624×4	
$6 \times 3,293$	



$$\begin{array}{r}
 6,421 \\
 \times \quad 6 \\
 \hline
 36,000 \quad (\text{ } \times \text{ }) \\
 \text{ } \quad (6 \times 400) \\
 120 \quad (6 \times \text{ }) \\
 + \text{ } \quad (6 \times 1) \\
 \hline
 \text{ }
 \end{array}$$



Solve using the partial products algorithm.

1. $4,731 \times 4 =$



2. $29 \times 4 =$



Lesson (4)

The Standard Multiplication Algorithm

Similarities in Models Estimate the products of the two problems.
Then, solve using the method assigned by your teacher.

1. 64×7

Estimate:

Solved Answer:

2. 132×8

Estimate:

Solved Answer:



3.
$$\begin{array}{r} 32 \\ \times 3 \\ \hline \end{array}$$

Estimate:

$$30 \times 3 = 90$$

Answer:

$$32 \times 3 = 96$$

4.
$$\begin{array}{r} 17 \\ \times 6 \\ \hline \end{array}$$

Estimate:

$$20 \times 6 = 120$$

Answer:

$$17 \times 6 = 102$$



5.
$$\begin{array}{r} 134 \\ \times 2 \\ \hline \end{array}$$

Estimate:

Answer:

6.
$$\begin{array}{r} 758 \\ \times 3 \\ \hline \end{array}$$

Estimate:

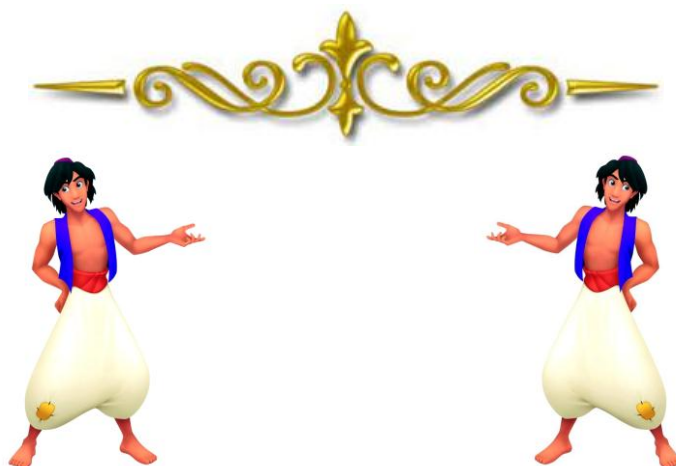
Answer:



Homework

Use numbers and symbols to solve each problem.

	Problem	Numbers and Symbols
1.	32×7	
2.	5×483	
3.	7×723	
4.	$1,673 \times 8$	



$$\begin{array}{r}
 2,523 \\
 \times \quad 5 \\
 \hline
 10,000 \quad (\text{ } \times \text{ }) \\
 \text{ } \quad (5 \times 500) \\
 100 \quad (5 \times \text{ }) \\
 + \text{ } \quad (5 \times 3) \\
 \hline
 \text{ }
 \end{array}$$



3. $5 \times 343 =$



7. $1,349$
 $\times \quad 2$

Estimate:

Answer:

8. $2,327$
 $\times \quad 4$

Estimate:

Answer:



Concept (2): Dividing by 1-Digit Divisors

Lesson (5)

Exploring Remainders

Learning Targets

- I can identify the **dividend**, **divisor**, and **quotient** of a division problem.
- I can solve division problems.
- I can explain what a **remainder** represents in a division problem.



Division Patterns Label the parts in the equation using the words divisor, dividend, and quotient. Then, look for patterns to complete the remaining problems. The first problem in the table is an example that is filled in for you.

$$600 \div 3 = \text{Answer}$$

600 is called the _____.

3 is called the _____.

The answer is called the _____.



There were 540 crayons in a large bin. Students were asked to put 9 crayons in a small box for each student to use. How many small boxes will students need in order to complete this task?



Put the suitable sign (<), (>) or (=):

$350 \div 7$	.....	$450 \div 5$
$2,000 \div 5$	.....	$4,000 \div 5$
$400 \div 4$	.....	$1,000 \div 2$
$30,000 \div 6$	.....	$20,000 \div 4$
$24,000 \div 8$	.....	$20,000 \div 5$
$450 \div 5$	.....	$8,100 \div 9$
$2,400 \div 6$	.....	$1,500 \div 3$
$64,000 \div 8$	.....	$4,800 \div 6$
$300 \div 5$	.....	$400 \div 8$
$45,000 \div 9$	.....	$2,500 \div 5$

Lesson (6)

Patterns and Place Value in Division

Equation	Related Fact	Quotient
$600 \div 3$	$6 \div 3 = 2$	200
$150 \div 5$		
$1,200 \div 6$		
$200 \div 4$		
$700 \div 7$		
$6,400 \div 8$		
$4,500 \div 9$		
$270 \div 3$		



Lesson (7)

The Area Model and Division

Use the area to model the following problem.

$535 \div 5$



Use the area model to solve each of the following:

a. $64 \div 2$



b. $85 \div 4$



c. $217 \div 5$



d. $159 \div 3$



e. $636 \div 6$



f. $484 \div 8$





Lesson (8)

The Partial Quotients Algorithm

Example 1

Divide.

a. $78 \div 6$

b. $658 \div 3$

c. $8,785 \div 7$

Solution 

$$\begin{array}{r} 6 \overline{) 78} \quad 10 \\ - 60 \\ \hline 18 \quad 3 \\ - 18 \\ \hline 0 \end{array}$$

$78 \div 6 = 10 + 3 = 13$

$$\begin{array}{r} 3 \overline{) 658} \quad 200 \\ - 600 \\ \hline 58 \quad 10 \\ - 30 \\ \hline 28 \quad 9 \\ - 27 \\ \hline 1 \end{array}$$

$$658 \div 3 = 200 + 10 + 9 = 219$$

and the remainder = 1

$$\begin{array}{r} 7 \overline{) 8,785} \quad 1,000 \\ - 7,000 \\ \hline 1,785 \quad 200 \\ - 1,400 \\ \hline 385 \quad 50 \\ - 350 \\ \hline 35 \quad 5 \\ - 35 \\ \hline 0 \end{array}$$

$$8,785 \div 7 = 1,000 + 200 + 50 + 5 = 1,255$$



Use the partial quotient algorithm to divide.

a. $52 \div 3$



b. $783 \div 5$



c. $7,320 \div 6$



Through the opposite division form the quotient equals _____

- A. 37 [R7] B. 223 [R6]
C. 223 [R1] D. 137 [R1]

$$\begin{array}{r} 6 \overline{) 823} 100 \\ - 600 \\ \hline 223 \quad 30 \\ - 180 \\ \hline 43 \quad 7 \\ - 42 \\ \hline 1 \end{array}$$



In the opposite division,
the quotient is: 224
and the remainder is: 4

$$\begin{array}{r} 4 \overline{) 897} 200 \\ - 800 \\ \hline 97 \quad 10 \\ - 40 \\ \hline 57 \quad 10 \\ - 40 \\ \hline 17 \quad 4 \\ - 16 \\ \hline 1 \end{array}$$

()



From the opposite division, the quotient =

- a 137 R7
b 137 R1
c 223 R6
d 223 R1

$$\begin{array}{r} 6 \overline{) 823} 100 \\ - 600 \\ \hline 223 \quad 30 \\ - 180 \\ \hline 43 \quad 7 \\ - 42 \\ \hline 1 \end{array}$$



The equation which represents the opposite figure is

- a $85 \div 5 = 107$ b $85 \div 17 = 5$
c $85 \div 5 = 17$ d $17 \div 5 = 85$

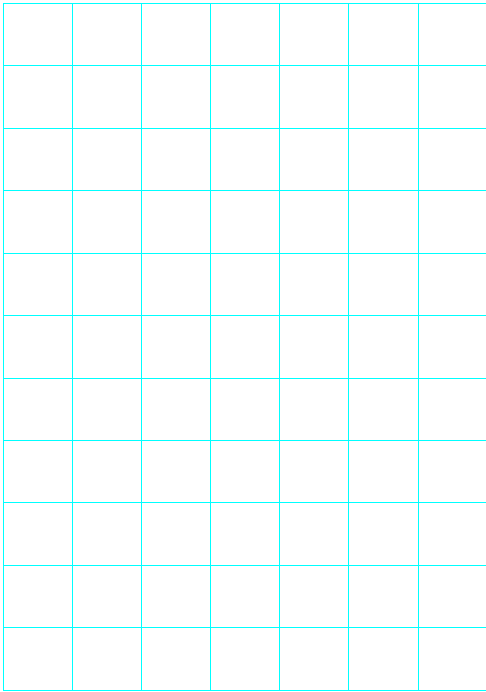
$$\begin{array}{r} 5 \overline{) 85} 10 \\ - 50 \\ \hline 35 \quad 7 \\ - 35 \\ \hline 00 \end{array}$$



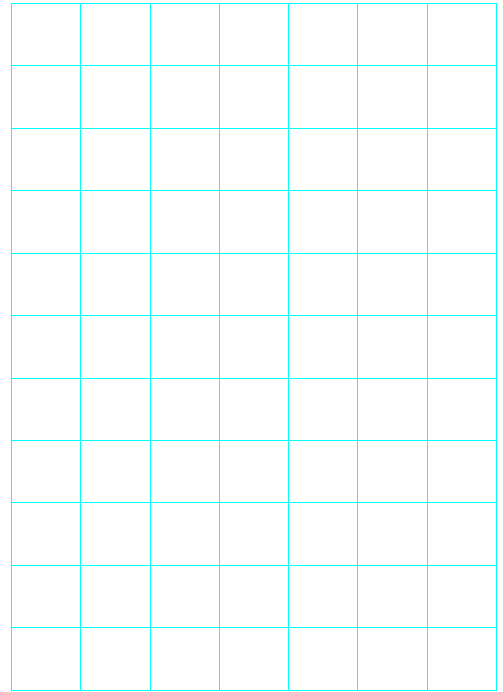
Lesson (9)

The Standard Division Algorithm

$454 \div 3 =$



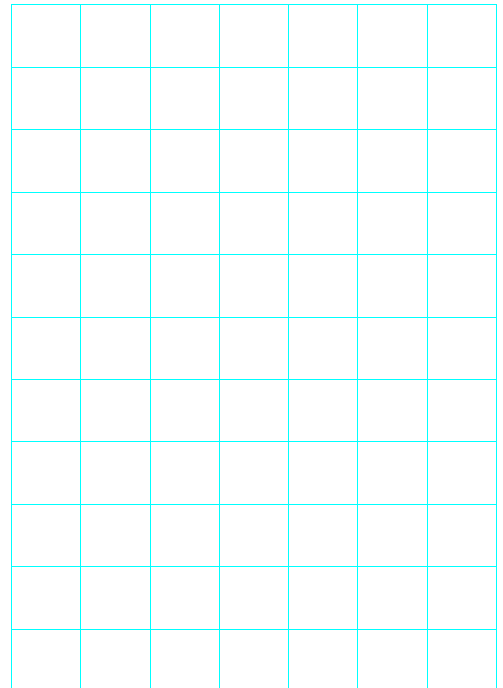
$778 \div 2 =$



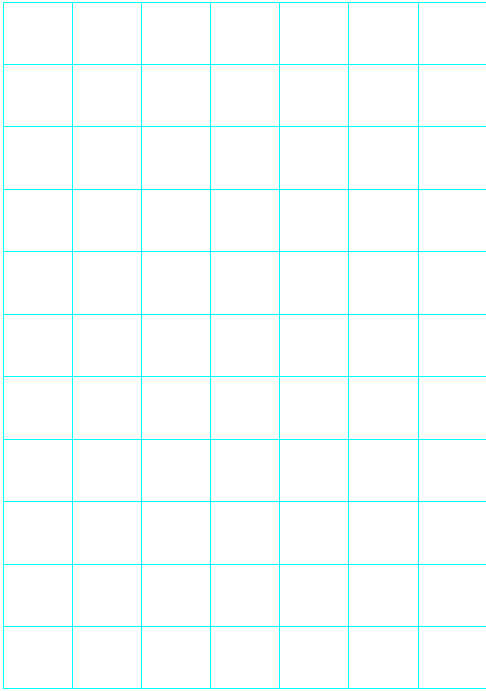
$368 \div 3 =$



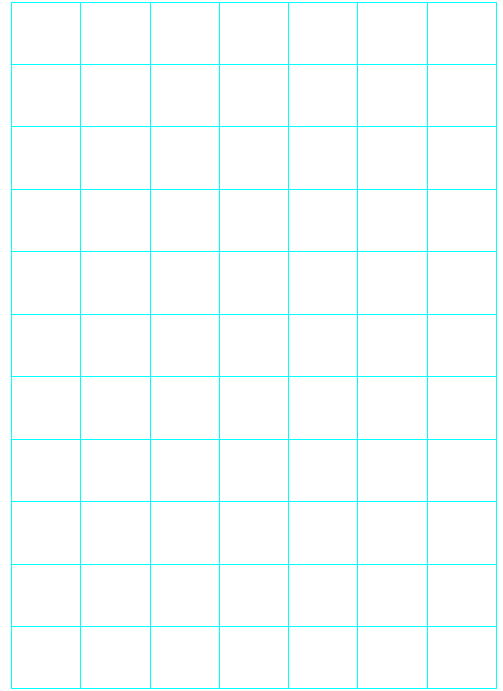
$4,858 \div 4 =$



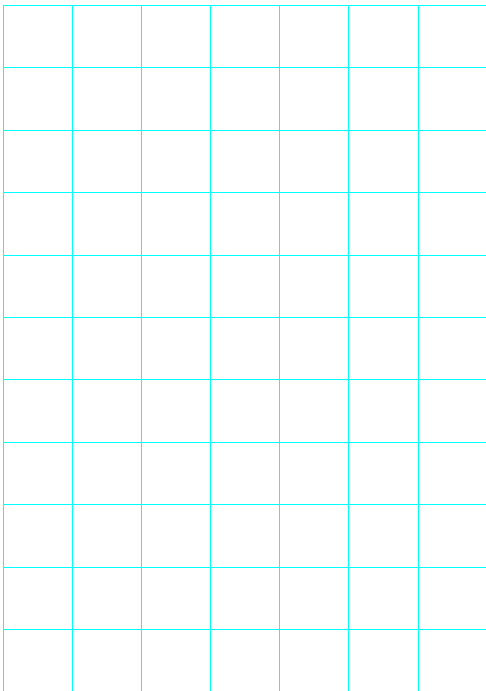
$240 \div 6 =$



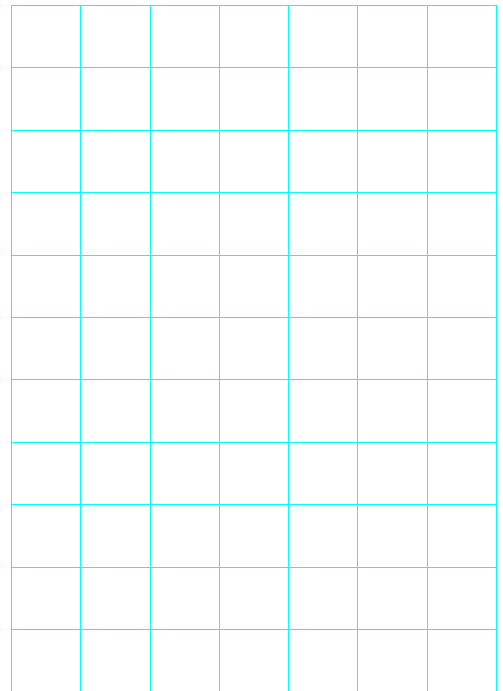
$1,500 \div 5 =$



$414 \div 4 =$



$761 \div 6 =$



Lesson (10)

Division and Multiplication



Use counters to find the quotient and remainder.

1. $10 \div 3$

2. $28 \div 5$

3. $15 \div 6$

4. $11 \div 3$

5. $29 \div 4$

6. $34 \div 5$

7. $25 \div 3$

8. $7 \overline{)20}$

**Go DEEPER**

Alyson has 46 beads to make bracelets. Each bracelet has 5 beads. How many more beads does Alyson need so that all the beads she has are used? Explain.

THINK SMARTER

For 13a–13d, choose Yes or No to tell whether the division expression has a remainder.

13a. $36 \div 9$

☐ Yes

☐ No

13b. $25 \div 3$

☐ Yes

☐ No

13c. $82 \div 9$

☐ Yes

☐ No

13d. $28 \div 7$

☐ Yes

☐ No


Use basic facts and place value to find the quotient.

3. $360 \div 6 =$

4. $2,000 \div 5 =$

5. $4,500 \div 9 =$



Homework

2. $3200 \div 8 =$ _____

3. $67 \div 3 =$ _____

4. $455 \div 4 =$ _____



Use basic facts and place value to find the quotient.

6. $560 \div 8 =$ _____

7. $200 \div 5 =$ _____

8. $240 \div 4 =$ _____

9. $810 \div 9 =$ _____

10. $6,400 \div 8 =$ _____

11. $3,500 \div 7 =$ _____

12. $5,000 \div 5 =$ _____

13. $9,000 \div 3 =$ _____

14. $3,000 \div 5 =$ _____



24. **THINK SMARTER** Which quotients are equal to 20? Mark all that apply.

☐ A $600 \div 2$

☐ D $140 \div 7$

☐ B $1,200 \div 6$

☐ E $500 \div 5$

☐ C $180 \div 9$



$27 \div 5 =$

$156 \div 4 =$

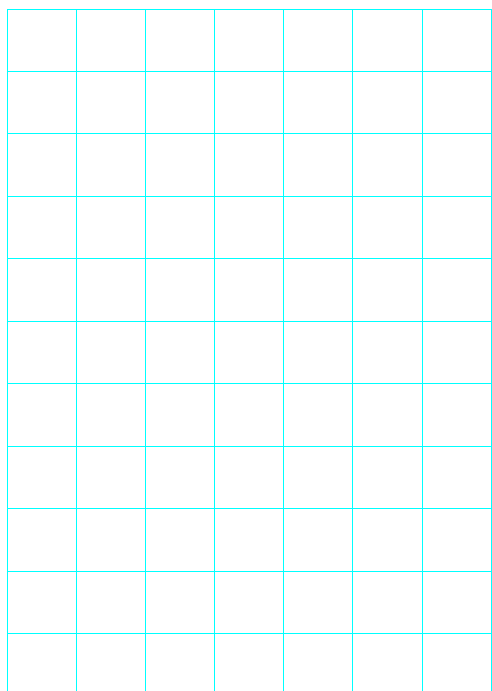


$2,704 \div 3 =$

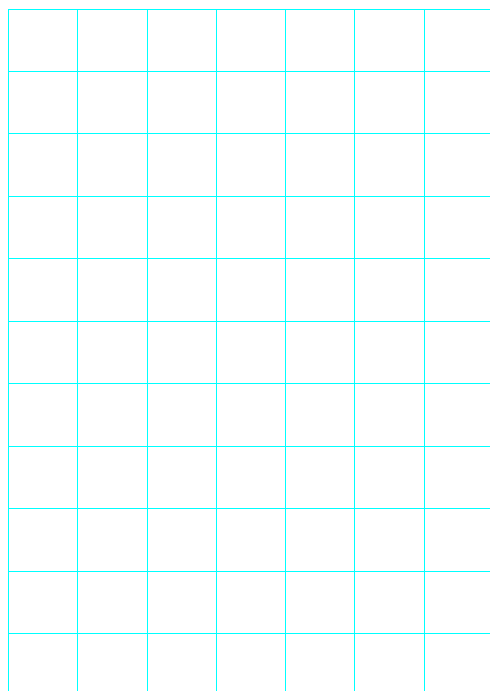
$583 \div 6 =$



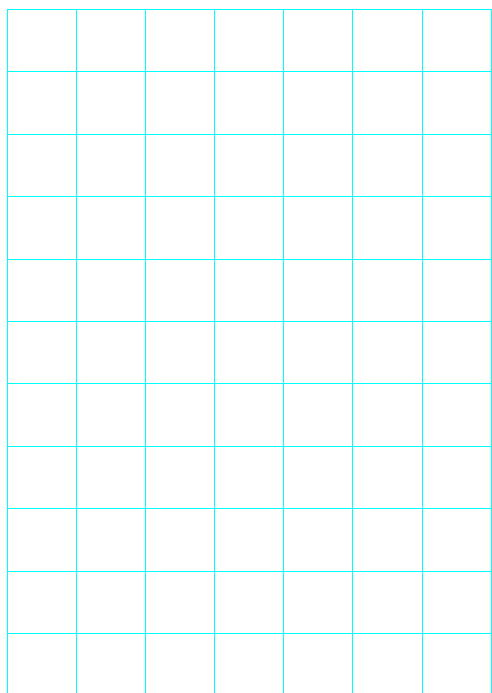
$198 \div 9 =$



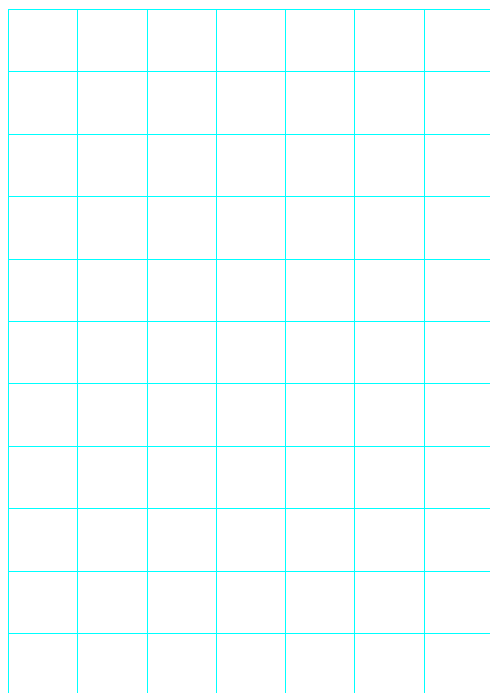
$259 \div 7 =$



$564 \div 8 =$



$738 \div 6 =$





UNIT

8

Theme 2 | Mathematical Operations and
Algebraic Thinking

Unit 8

Order of Operations



Lesson (1)

Order of Operations

Parentheses

Multiplication and Division (left-to-right)

Addition and Subtraction (left-to-right)

G**E****M****S**

Groupings

 $() \{ \} []$

Exponents

 n^2

Multiply/Divide

Left to Right

 \div / \times

Subtract/Add

Left to Right

 $+ -$

$$\begin{aligned}
 &4 + 10 \div 2 \\
 &4 + 5 \\
 &4 + 5 \\
 &9
 \end{aligned}$$



$ \begin{aligned} &3 + 6 \div 3 \\ &= 3 + 2 \\ &= 5 \end{aligned} $	$ \begin{aligned} &9 \div 3 + 6 \\ &= 3 + 6 \\ &= 9 \end{aligned} $	$ \begin{aligned} &7 \times 2 + 4 \\ &= 14 + 4 \\ &= 18 \end{aligned} $	$ \begin{aligned} &5 + 3 \times 4 \\ &= 5 + 12 \\ &= 17 \end{aligned} $
$ \begin{aligned} &9 - 6 \div 2 \\ &= 9 - 3 \\ &= 6 \end{aligned} $	$ \begin{aligned} &8 \div 4 - 2 \\ &= 2 - 2 \\ &= 0 \end{aligned} $	$ \begin{aligned} &5 \times 3 - 7 \\ &= 15 - 7 \\ &= 8 \end{aligned} $	$ \begin{aligned} &9 - 4 \times 2 \\ &= 9 - 8 \\ &= 1 \end{aligned} $



Solve the problems. Show your work.

1. $18 \times 2 + 8 - 3 =$ _____

2. $73 - 60 + 15 \div 3 =$ _____

3. $4 + 4 + 5 \times 10 =$ _____

4. $80 \div 8 - 7 =$ _____





$$8 \times 5 + 7 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$4 \times 8 - 5 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$7 + 2 \times 9 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$12 - 3 \times 3 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$7 + 8 \div 2 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$48 \div 8 + 5 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$36 \div 9 - 3 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$12 - 10 \div 2 = \dots\dots\dots$$
$$= \dots\dots\dots$$



Lesson (2)

The Order of Operations and Story Problems

Ashraf has to take the bus to work. It takes 27 minutes to get to the bus stop near his job. Then, he has to walk for 12 minutes from the bus stop to his place of work. How many minutes does Ashraf spend going to work during a 5-day week ?



A group of tourists are taking a tour of Alexandria. There are 172 tourists and 8 tour guides in the group. They want to travel to the pyramids in minibuses. Each minibus fits 9 people. How many minibuses will they need in order to get everyone to the pyramids ?



Bilal buys 6 packages of balloons. Each package contains 18 balloons. He wants to give the balloons to his friends at his birthday party. If he has 8 friends at the party, how many balloons can each friend take home ?



Sita wants to bake berry muffins. Each muffin will have 6 berries in it. She buys 198 berries from the store. On the way home, she eats 17 of the berries. How many muffins can she make with the berries she has left ?



**Homework**

$$9 \times 4 + 14 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$4 \times 8 - 9 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$6 + 3 \times 2 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$25 - 3 \times 7 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$6 + 18 \div 3 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$63 \div 7 + 21 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$42 \div 7 - 5 = \dots\dots\dots$$
$$= \dots\dots\dots$$

$$15 - 14 \div 7 = \dots\dots\dots$$
$$= \dots\dots\dots$$



في هذا الجزء يقوم الطالب بحل مسألة واحدة يوميا حتى نهاية العام حتى يتقن عملية القسمة المطولة

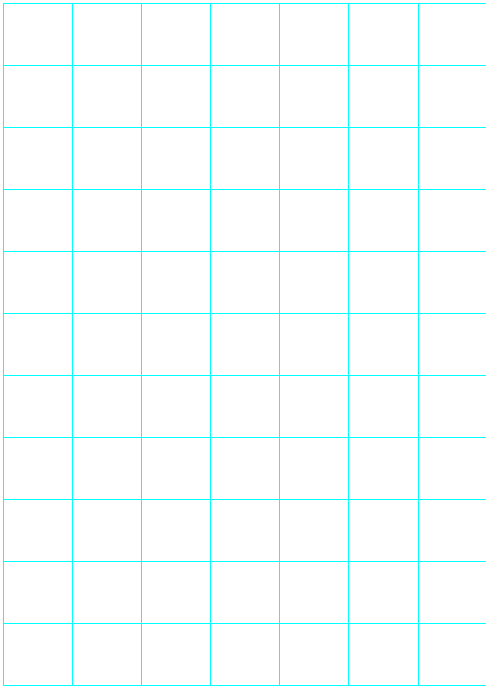
$$541 \div 4 =$$



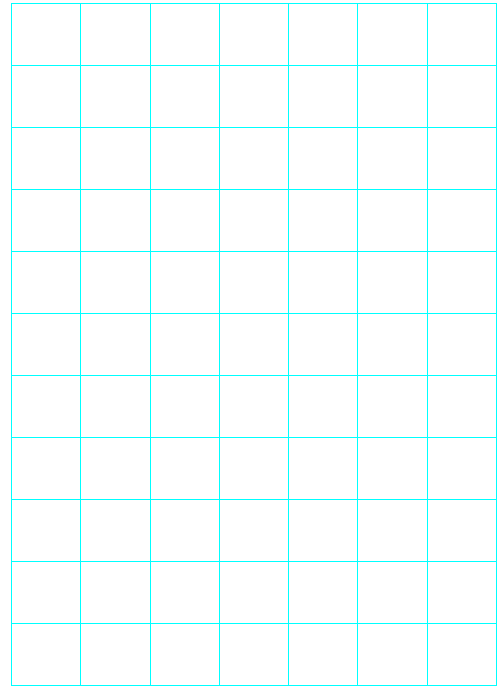
$$115 \div 5 =$$



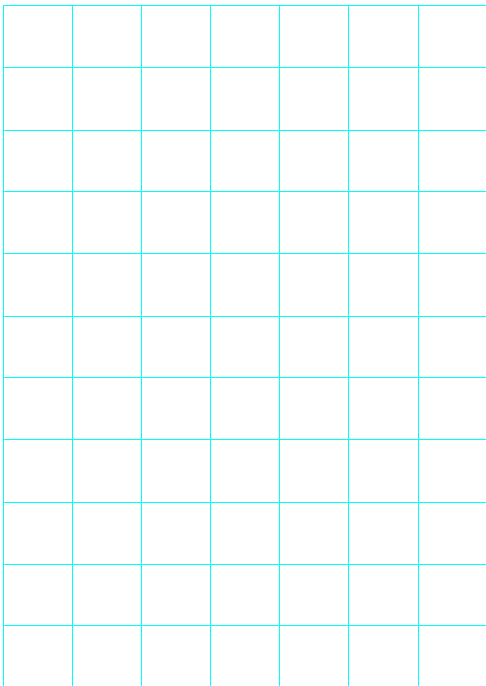
$250 \div 2 =$



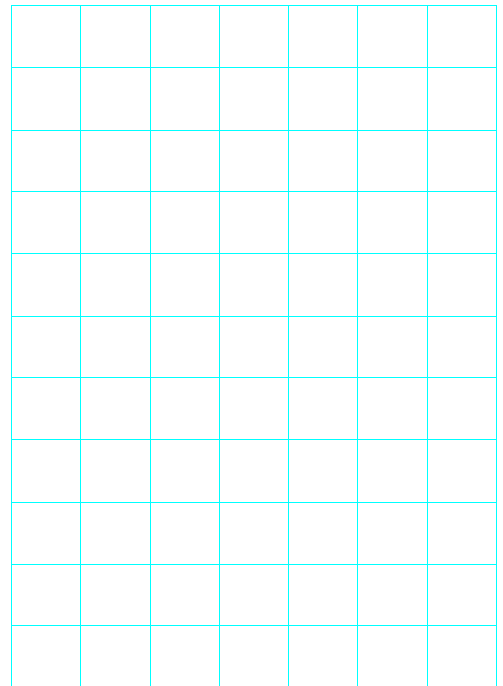
$373 \div 3 =$



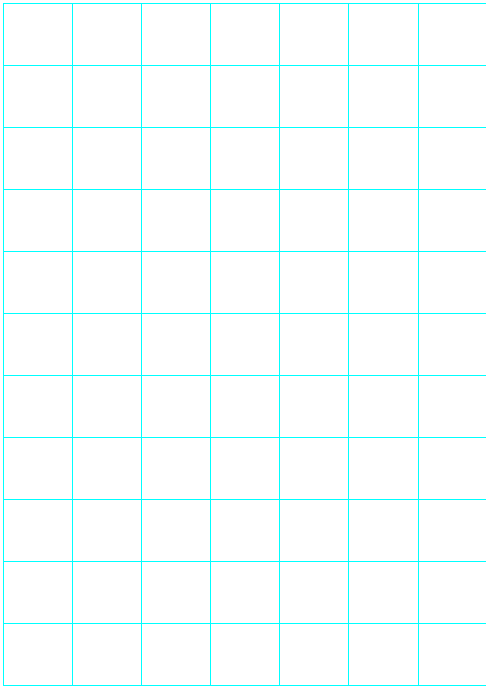
$265 \div 5 =$



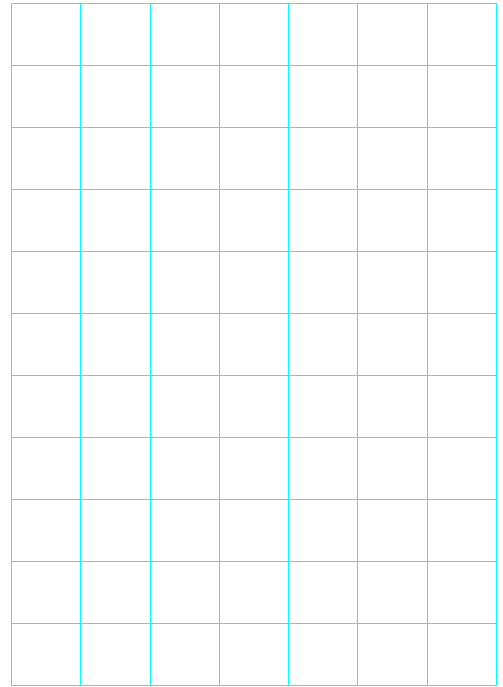
$254 \div 4 =$



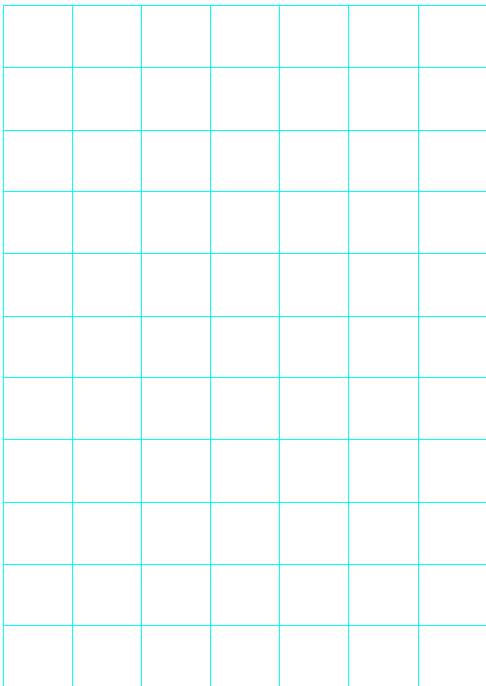
$228 \div 5 =$



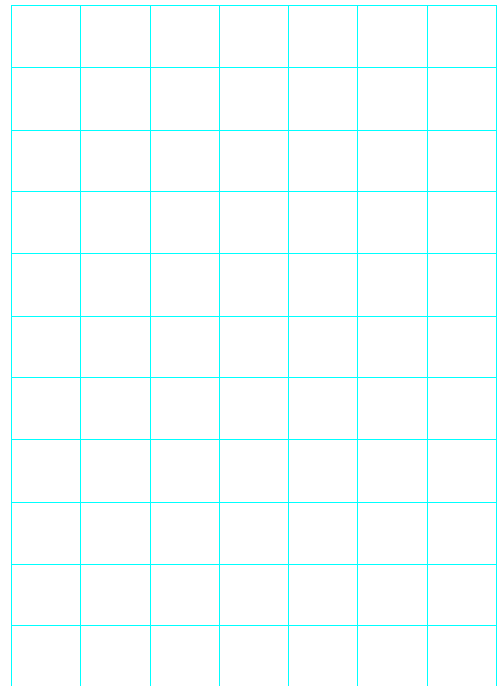
$216 \div 6 =$



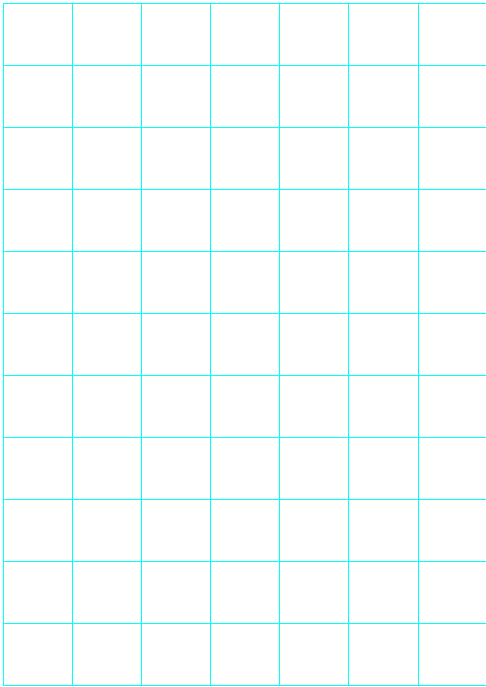
$432 \div 8 =$



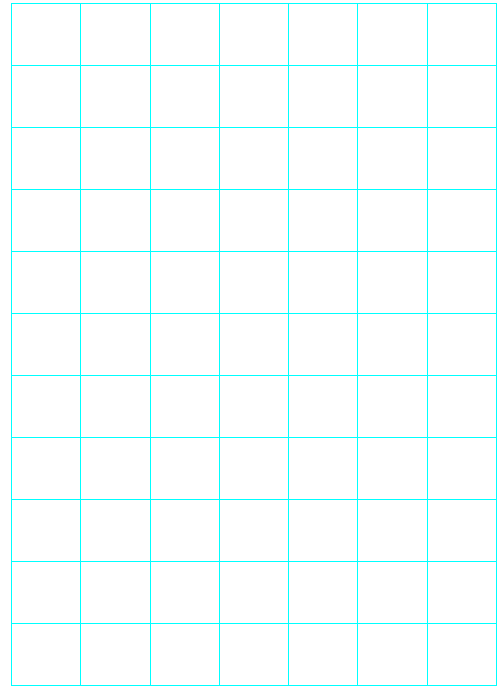
$441 \div 7 =$



$212 \div 5 =$



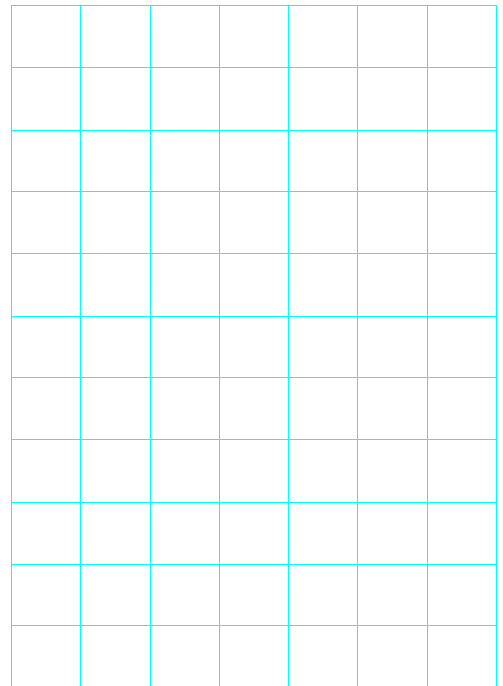
$212 \div 4 =$



$1536 \div 3 =$



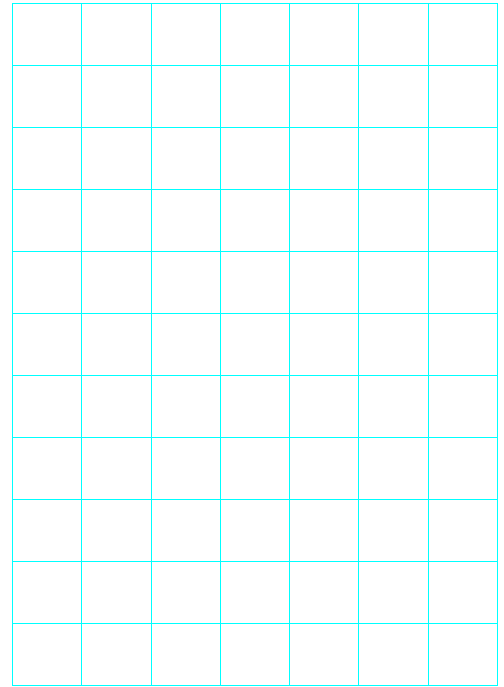
$1926 \div 6 =$



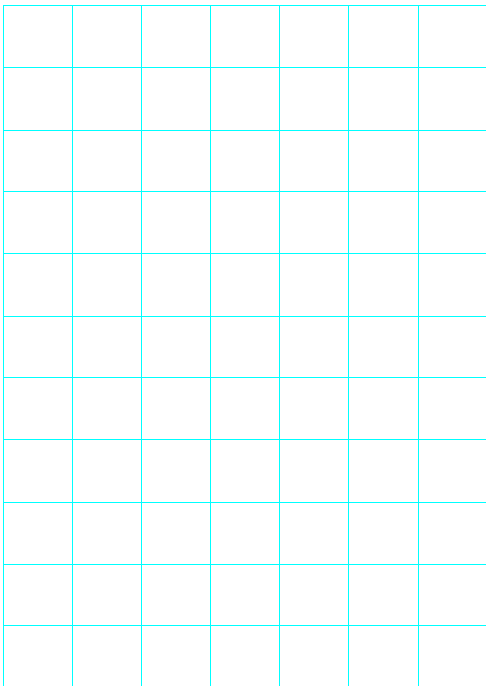
$1257 \div 5 =$



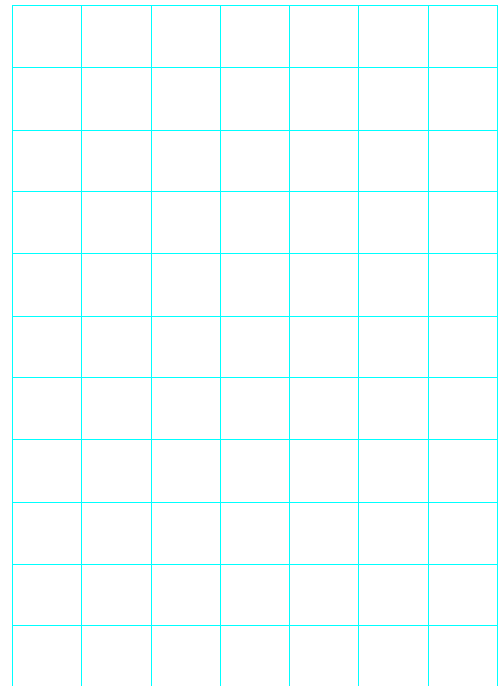
$1260 \div 4 =$



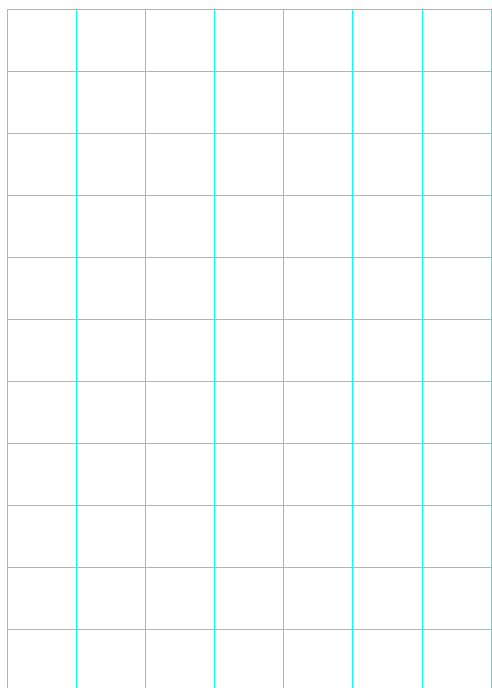
$1525 \div 5 =$



$2410 \div 6 =$



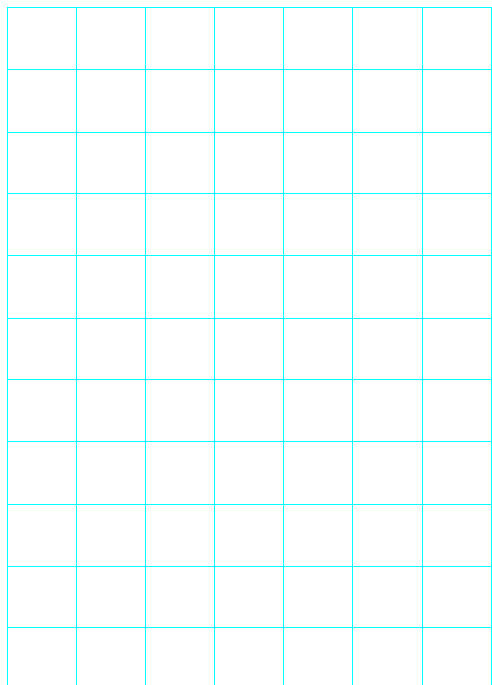
$632 \div 2 =$



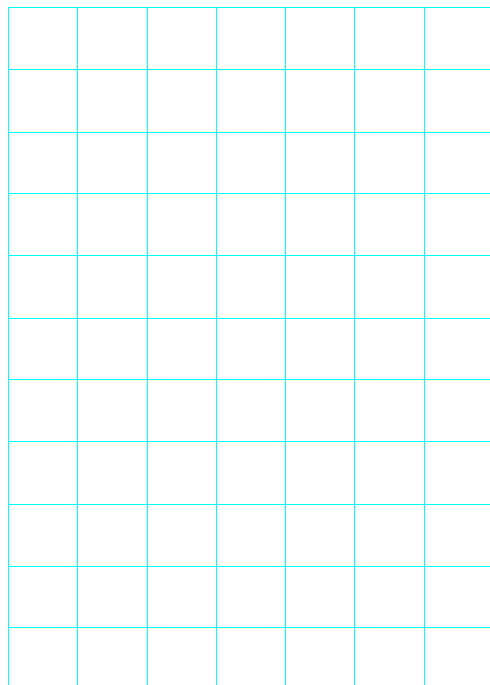
$965 \div 4 =$



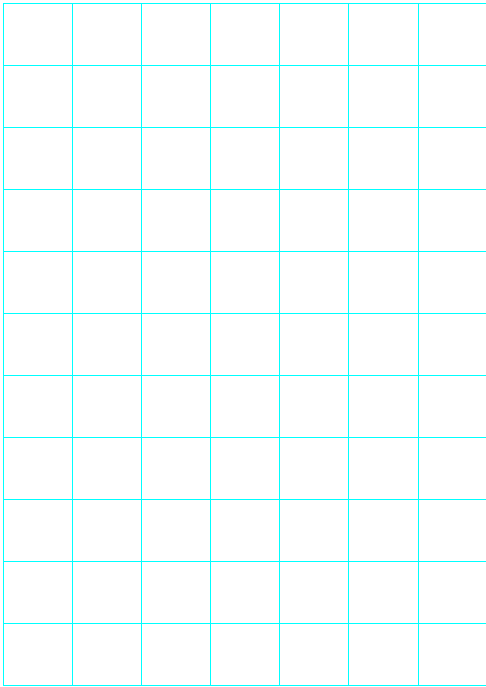
$1290 \div 2 =$



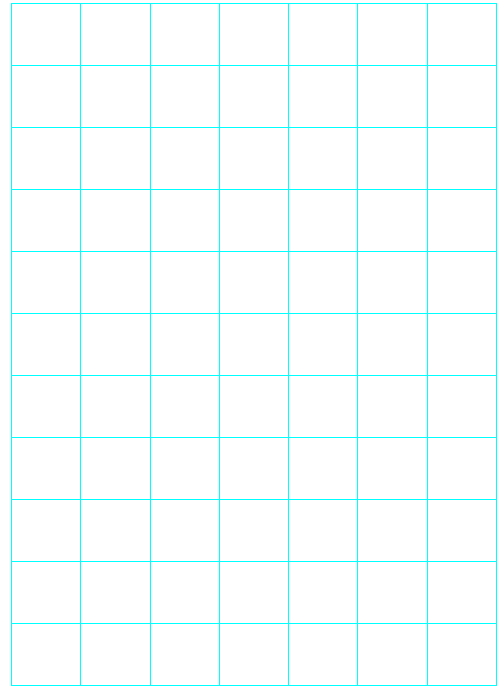
$2117 \div 5 =$



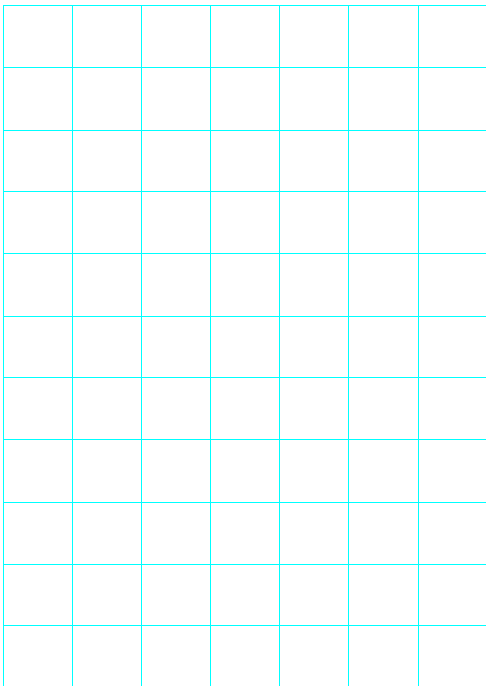
$1596 \div 3 =$



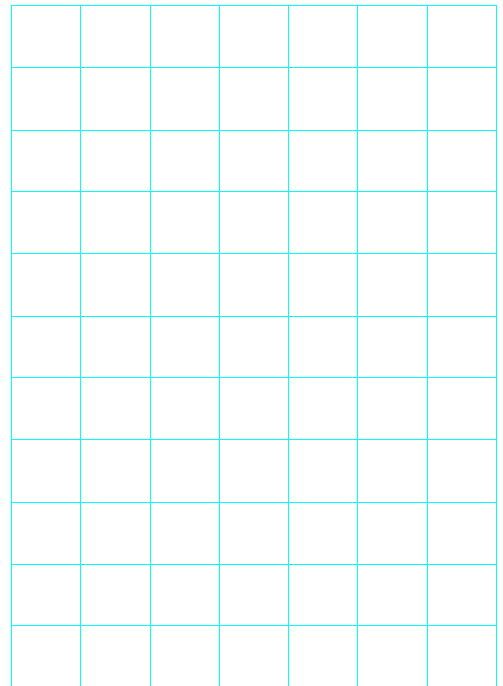
$2524 \div 4 =$



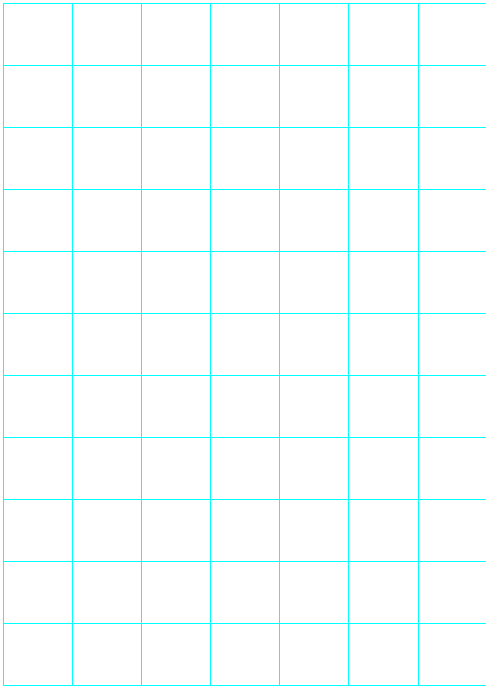
$1258 \div 5 =$



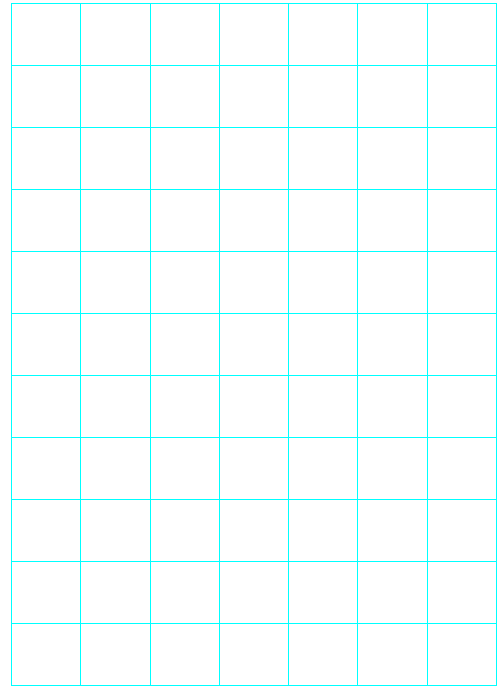
$3106 \div 5 =$



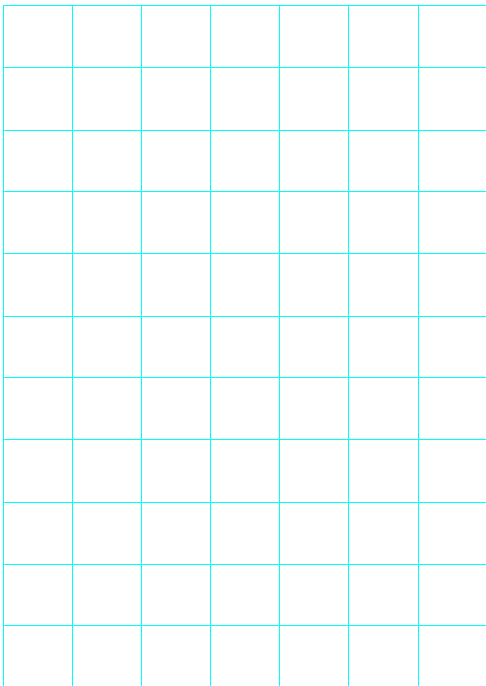
$1029 \div 2 =$



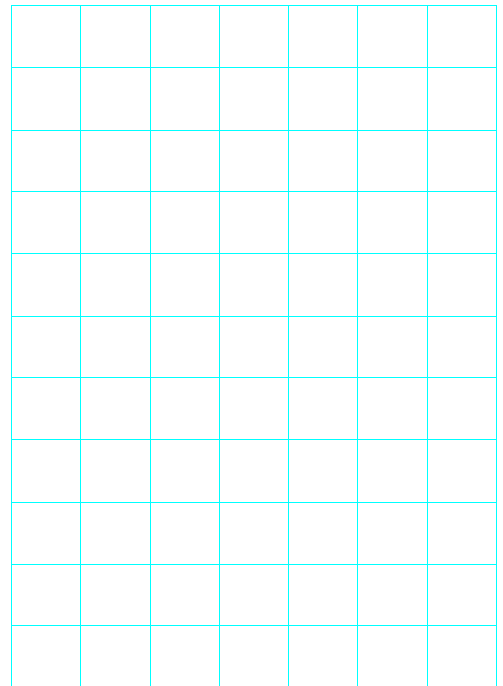
$225 \div 3 =$



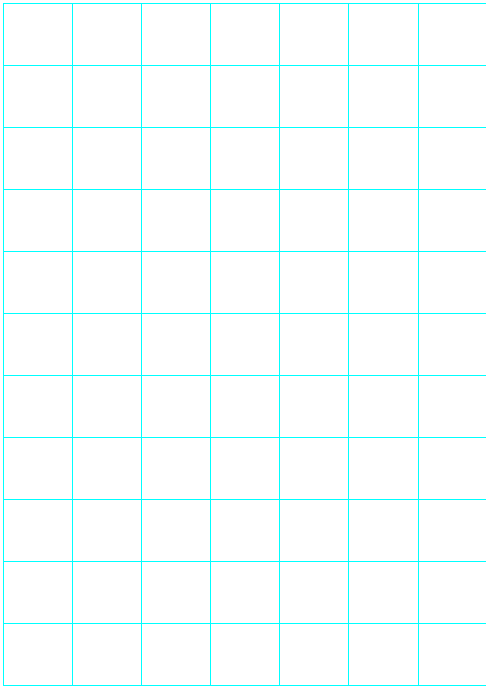
$1300 \div 4 =$



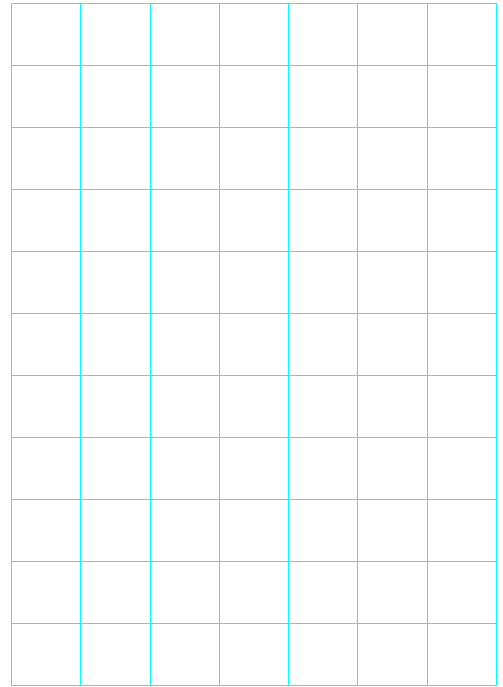
$1506 \div 6 =$



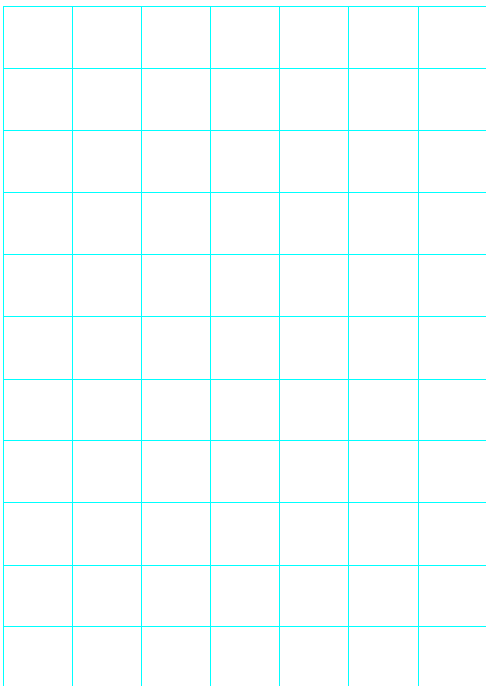
$3078 \div 9 =$



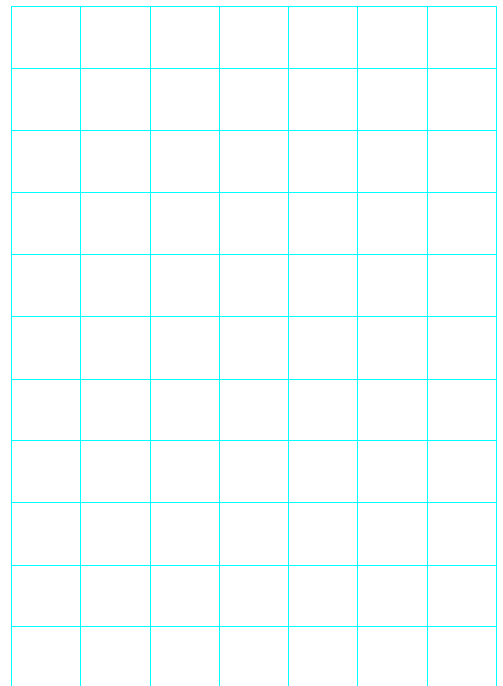
$434 \div 8 =$



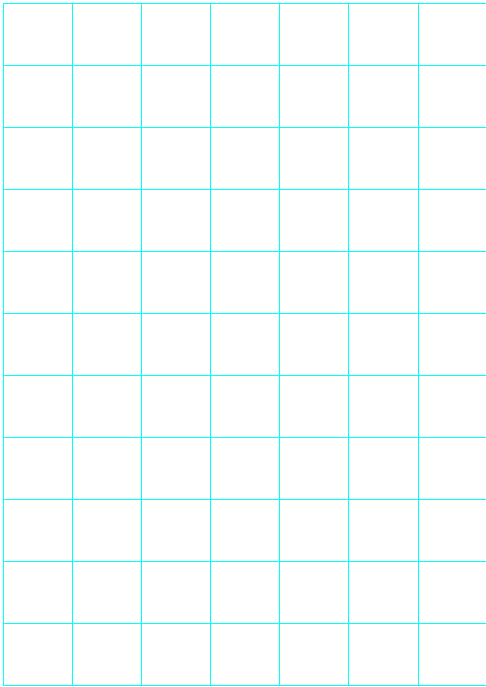
$436 \div 7 =$



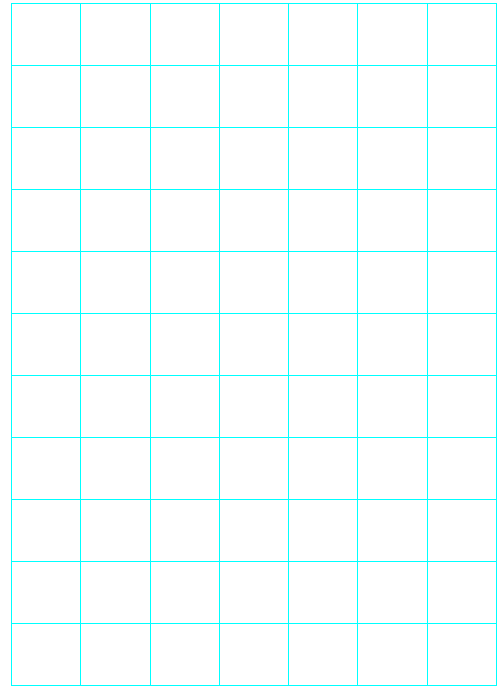
$1608 \div 4 =$



$2560 \div 5 =$



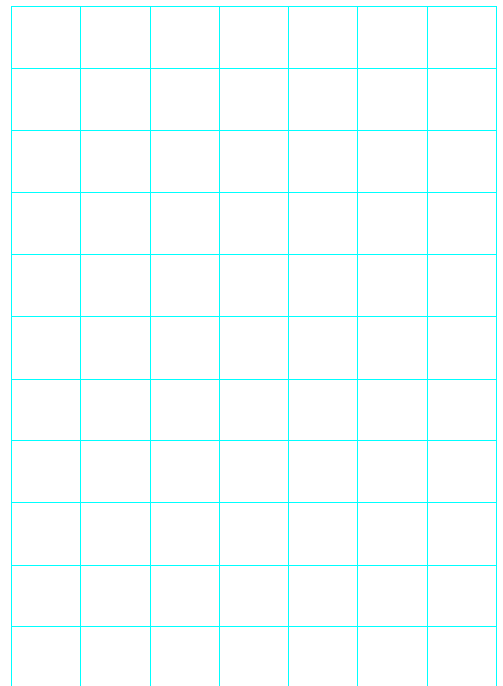
$1063 \div 2 =$



$2671 \div 5 =$



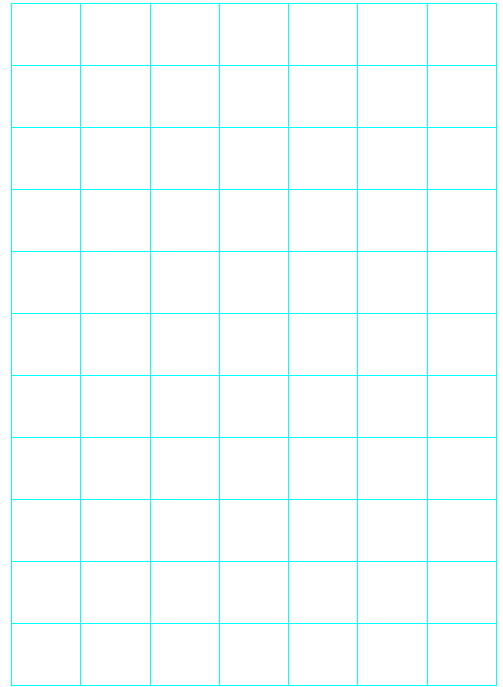
$1269 \div 3 =$



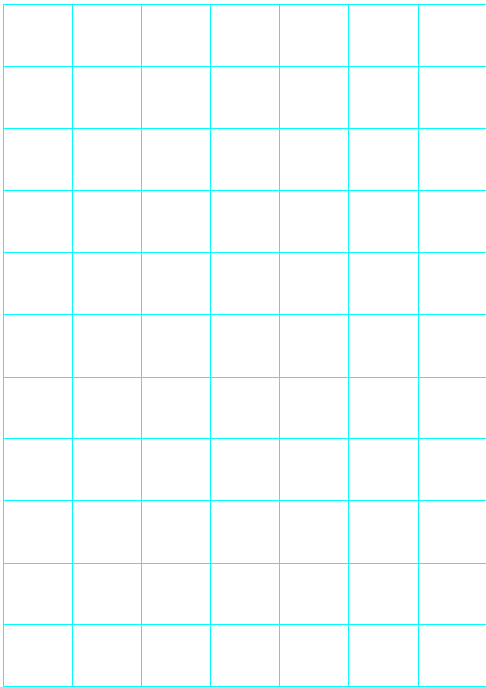
$1410 \div 6 =$



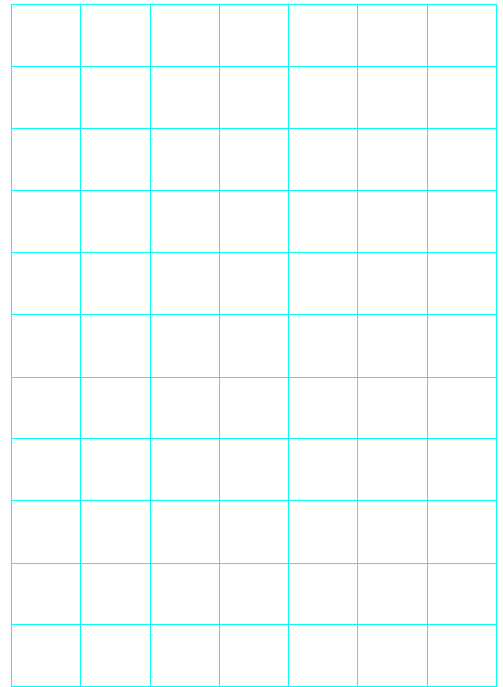
$2172 \div 4 =$



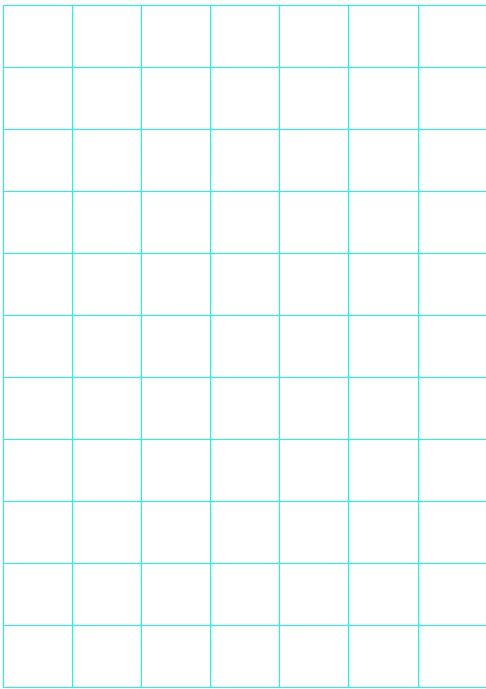
$2175 \div 5 =$



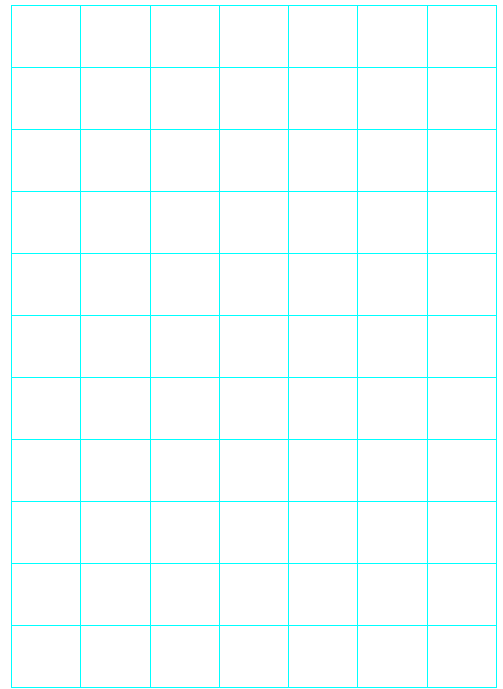
$1305 \div 2 =$



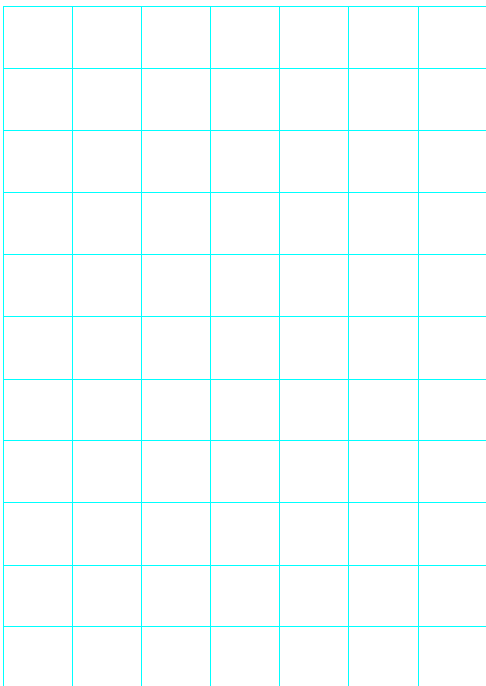
$3204 \div 6 =$



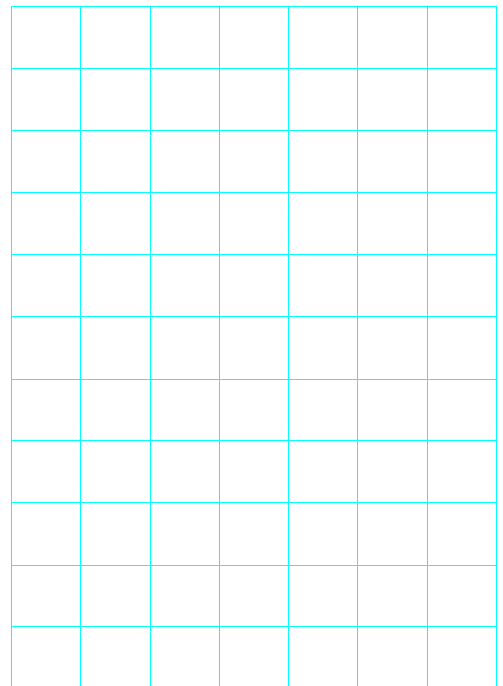
$2584 \div 8 =$



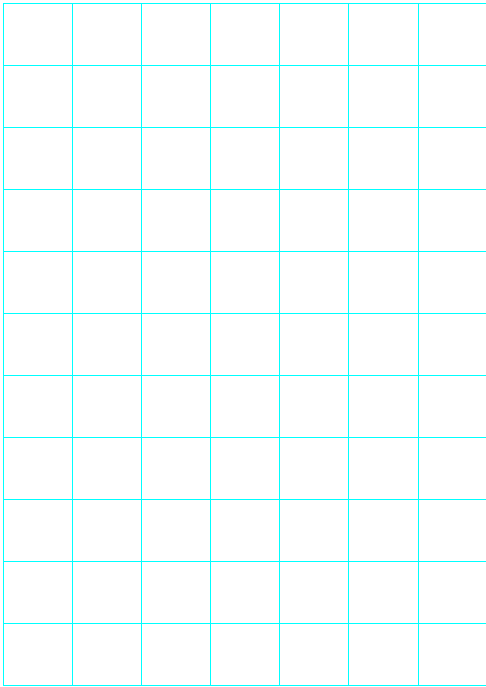
$1617 \div 7 =$



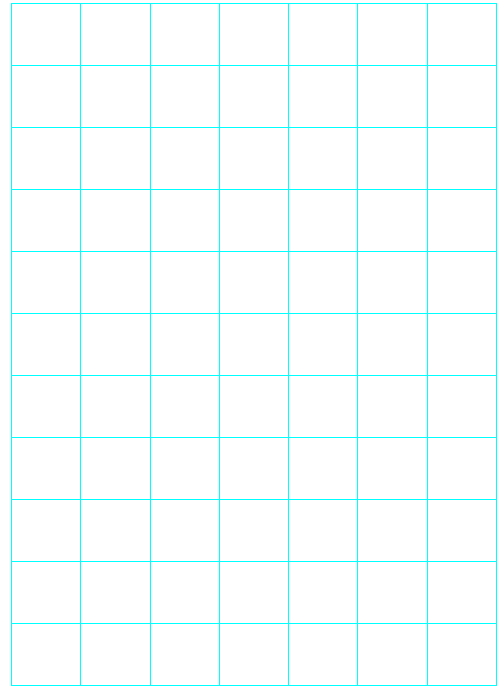
$1917 \div 9 =$



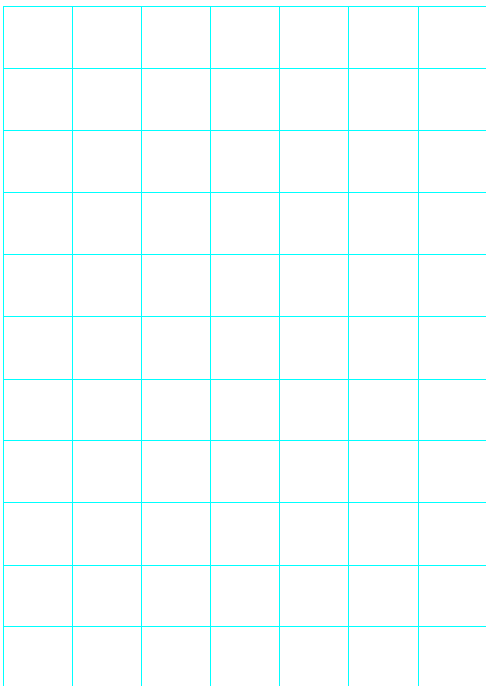
$3207 \div 6 =$



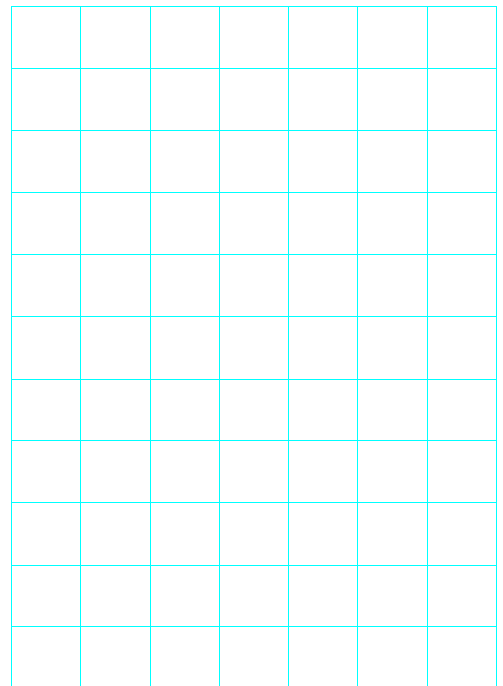
$2583 \div 8 =$



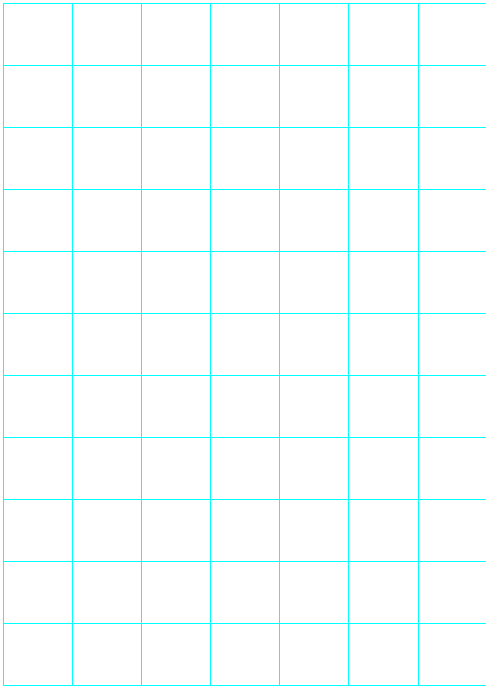
$1619 \div 7 =$



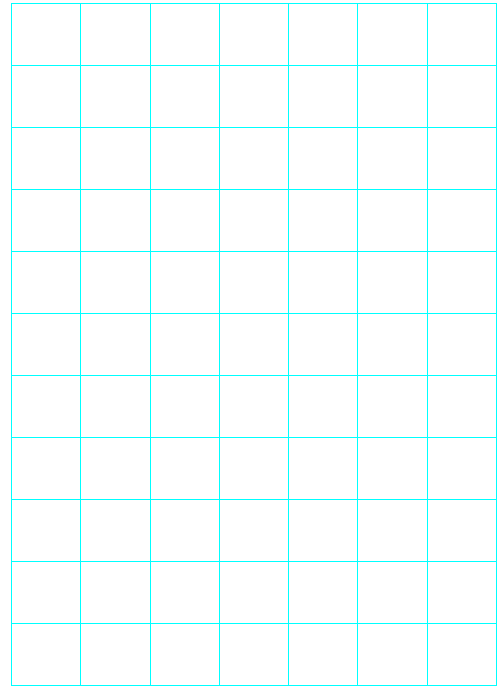
$1920 \div 9 =$



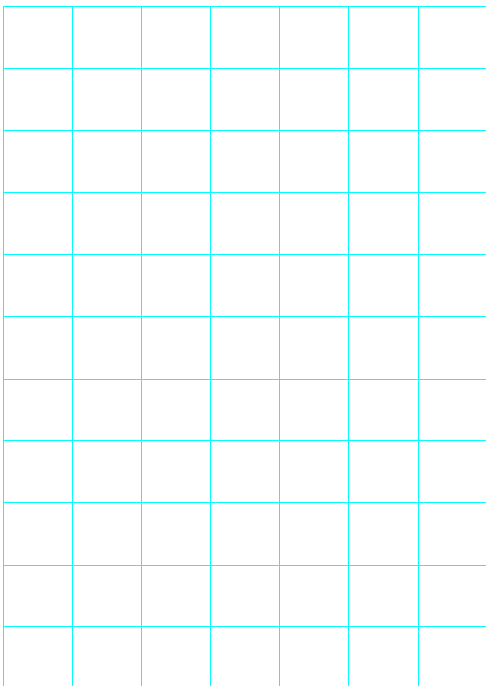
$250 \div 2 =$



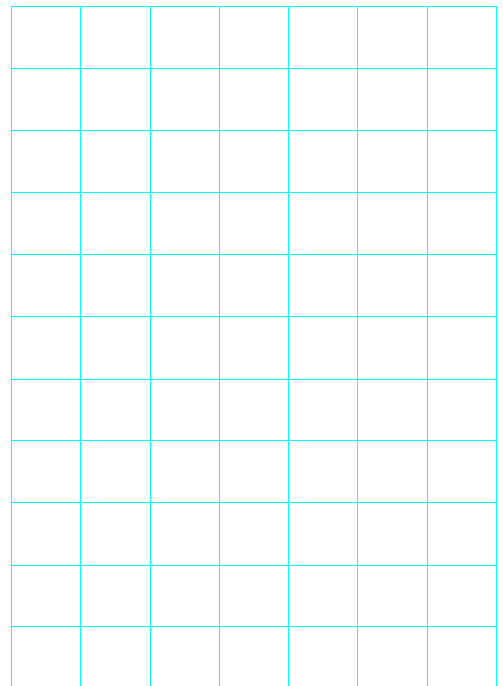
$373 \div 3 =$



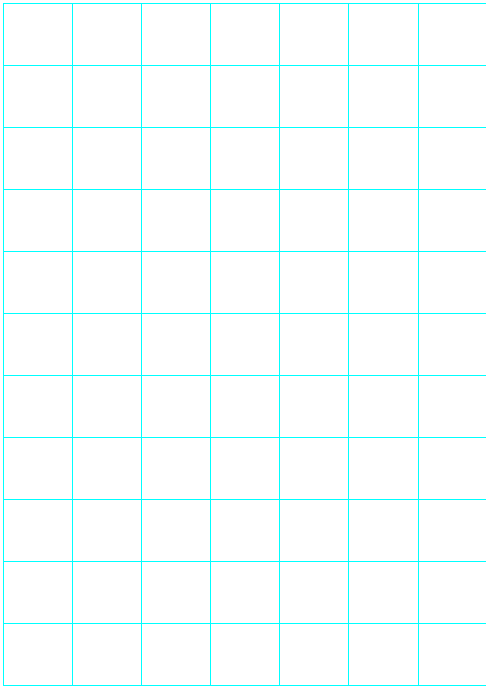
$265 \div 5 =$



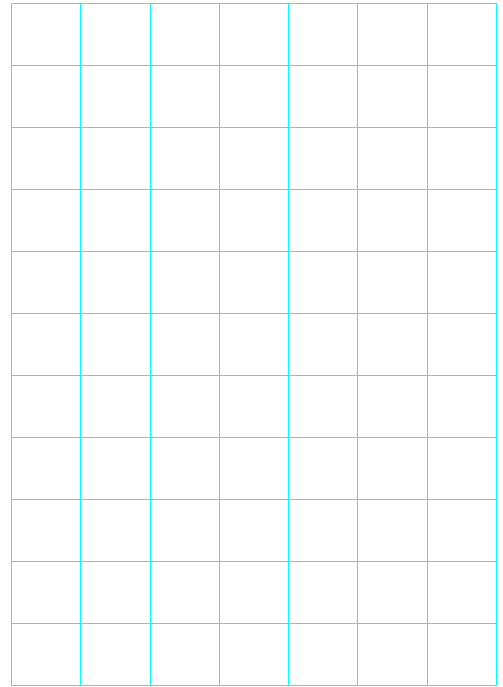
$254 \div 4 =$



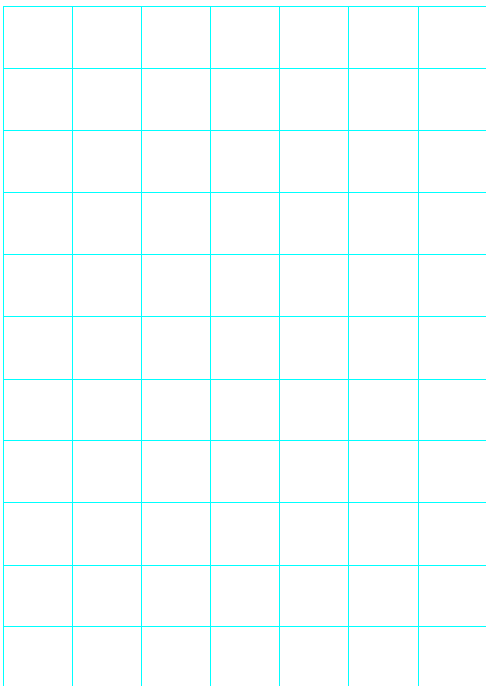
$228 \div 5 =$



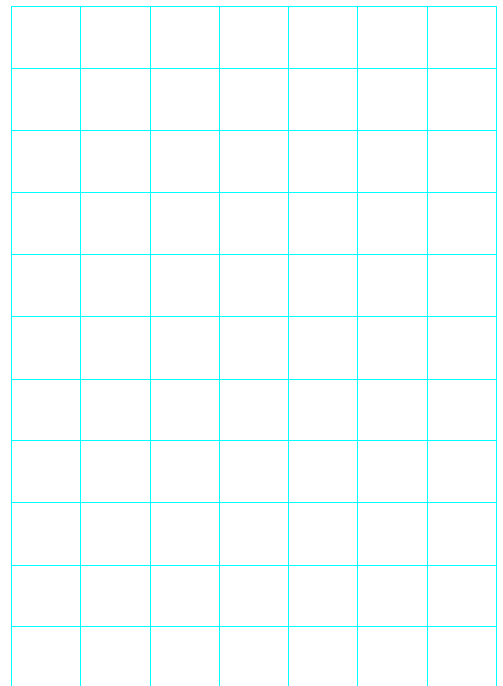
$216 \div 6 =$



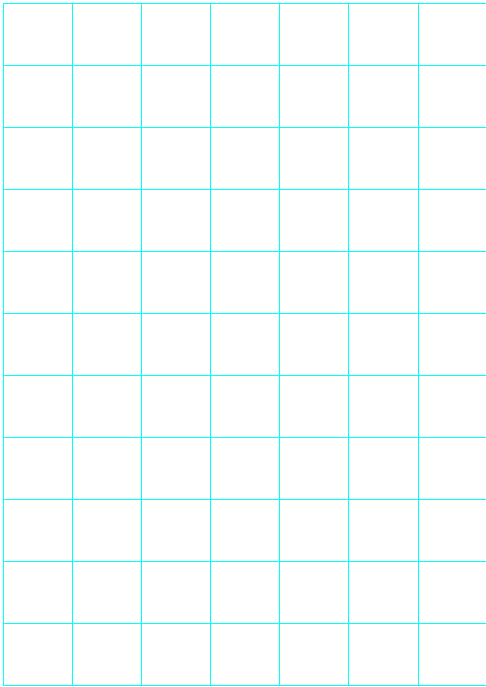
$432 \div 8 =$



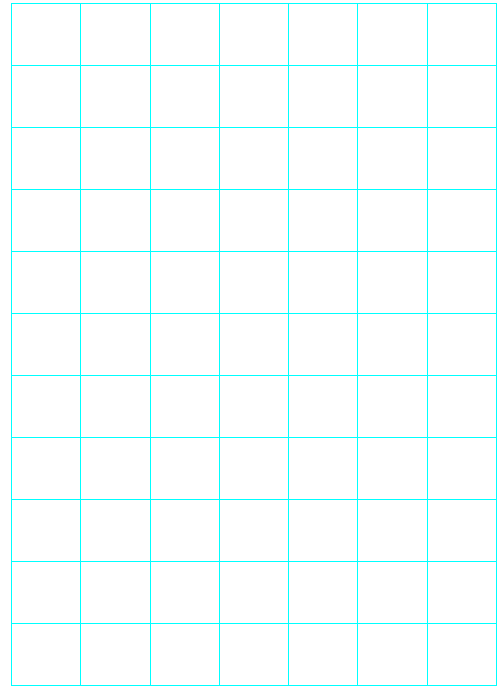
$441 \div 7 =$



$212 \div 5 =$



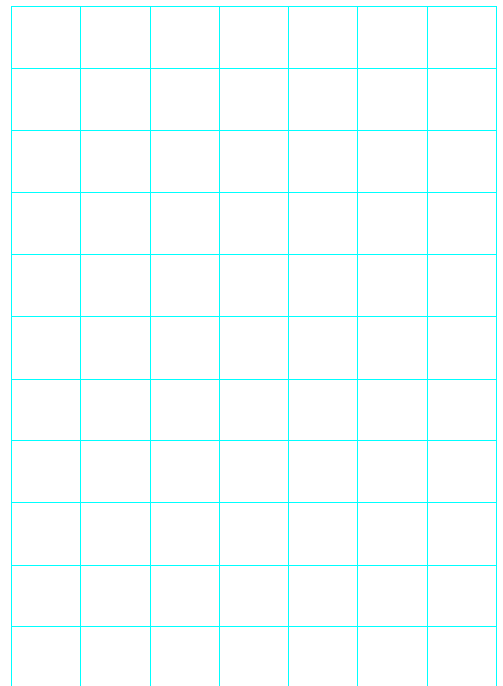
$212 \div 4 =$



$1536 \div 3 =$



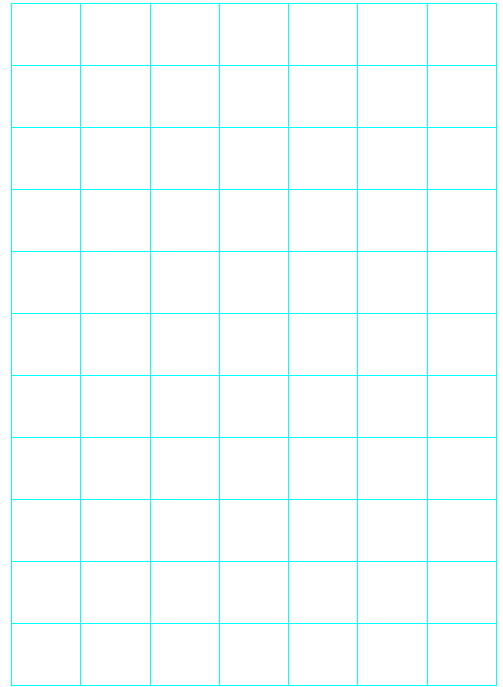
$1926 \div 6 =$



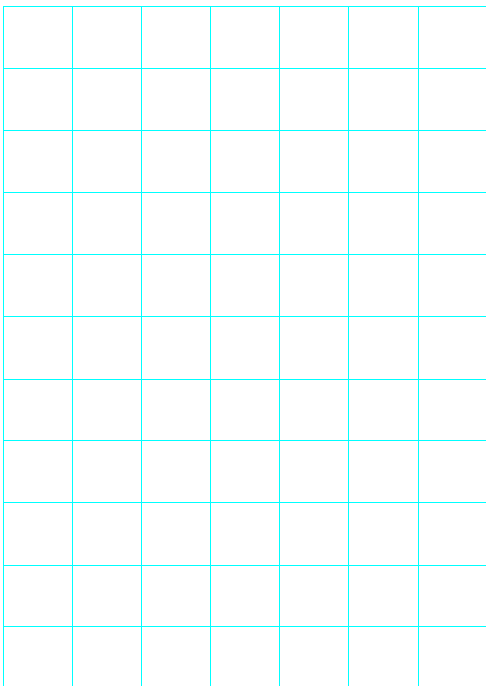
$1257 \div 5 =$



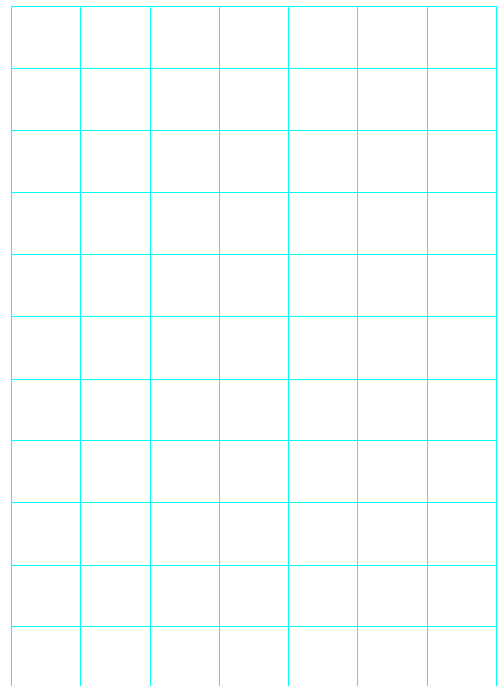
$1260 \div 4 =$



$1525 \div 5 =$



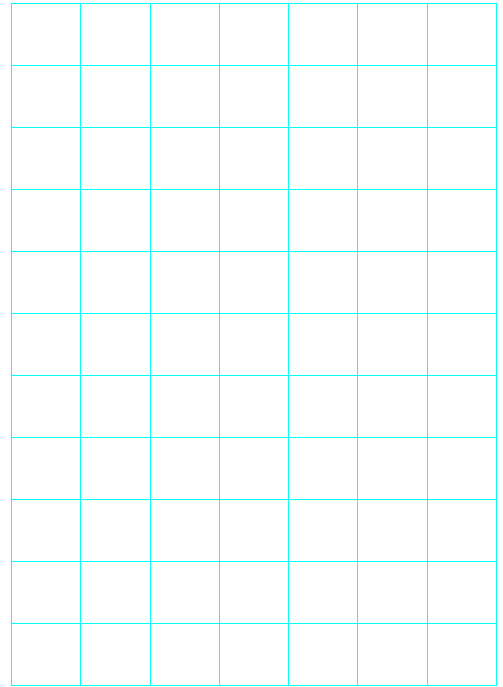
$2410 \div 6 =$



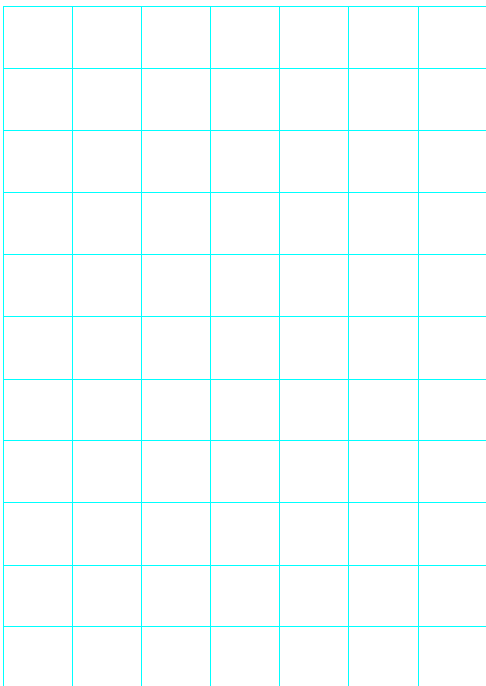
$632 \div 2 =$



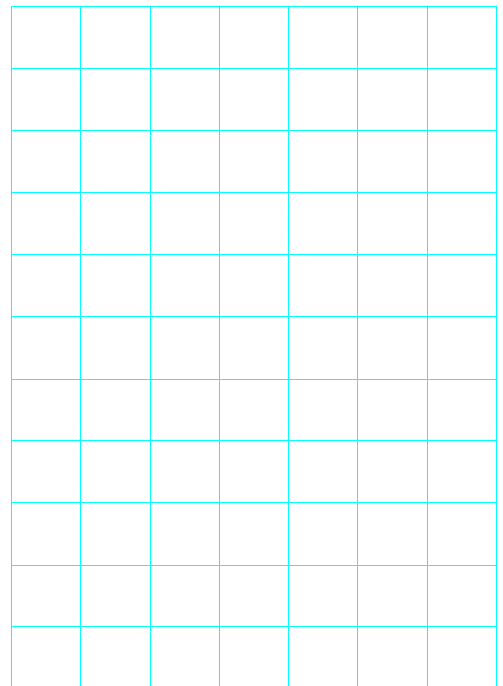
$965 \div 4 =$



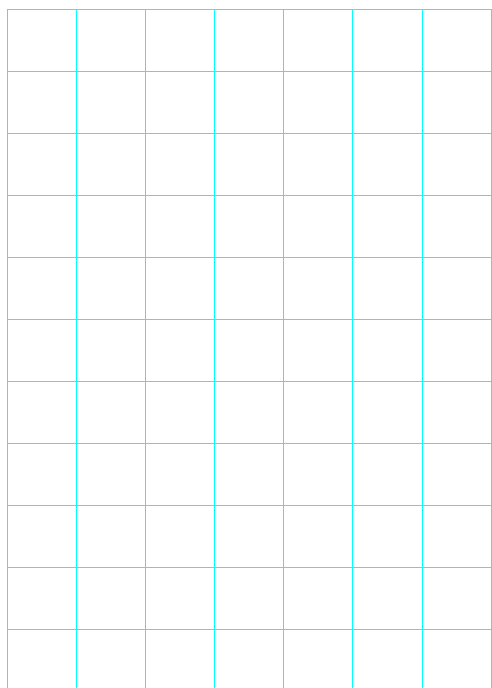
$1290 \div 2 =$



$2117 \div 5 =$



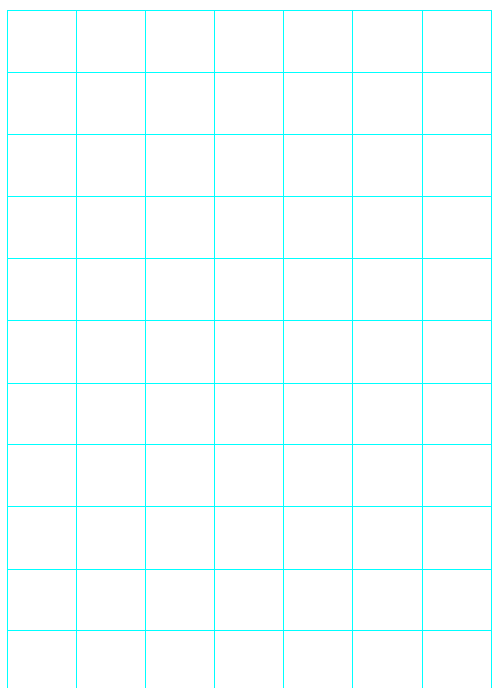
$1596 \div 3 =$



$2524 \div 4 =$



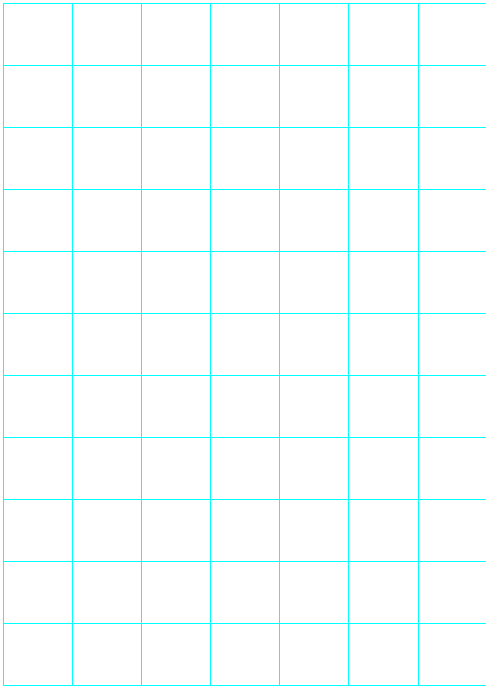
$1258 \div 5 =$



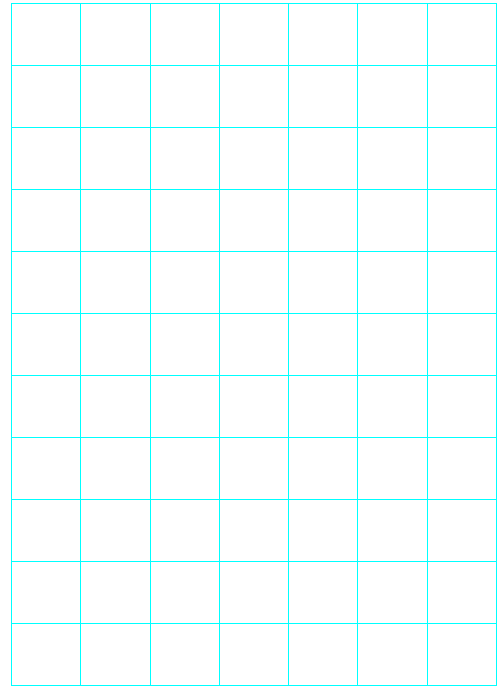
$3106 \div 5 =$



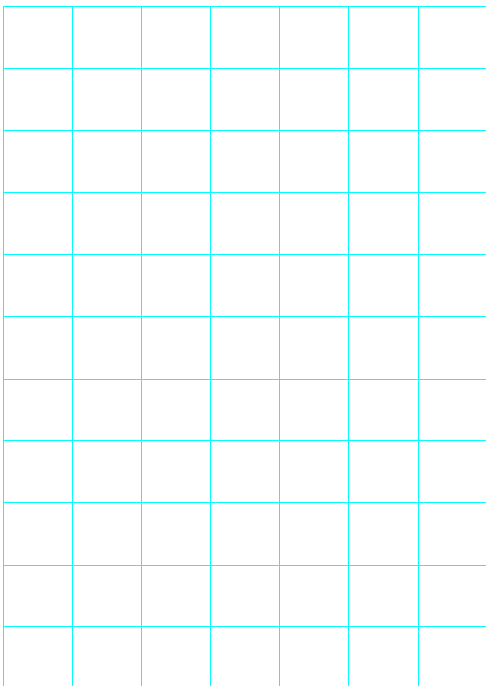
$1029 \div 2 =$



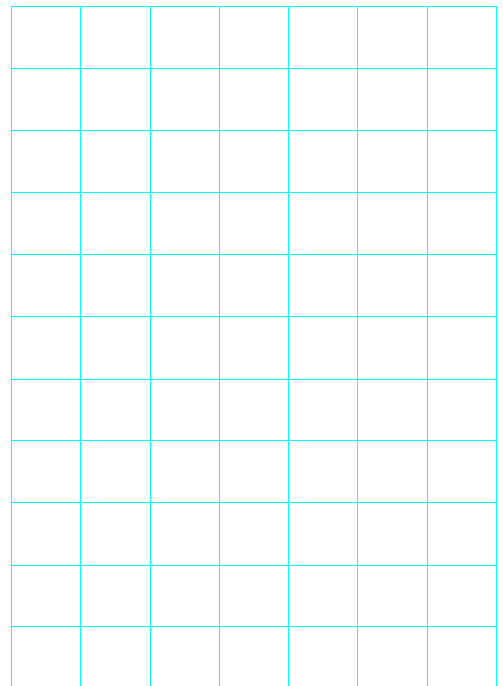
$225 \div 3 =$



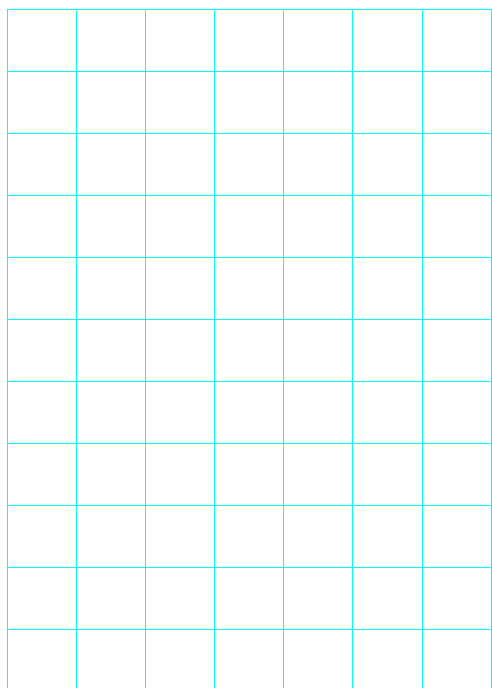
$1300 \div 4 =$



$1506 \div 6 =$



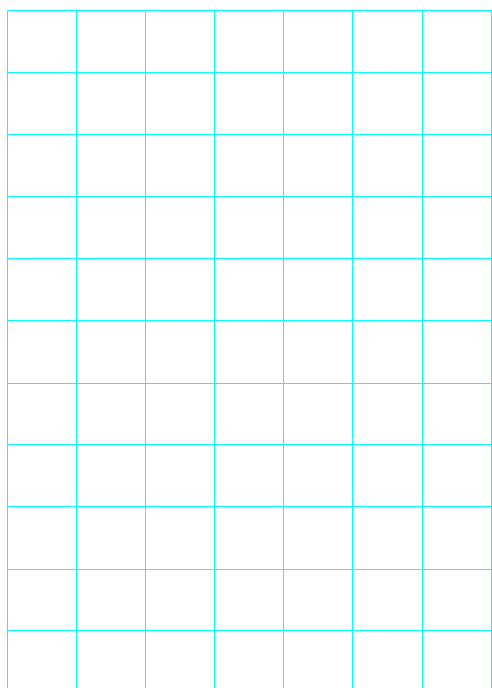
$3078 \div 9 =$



$434 \div 8 =$

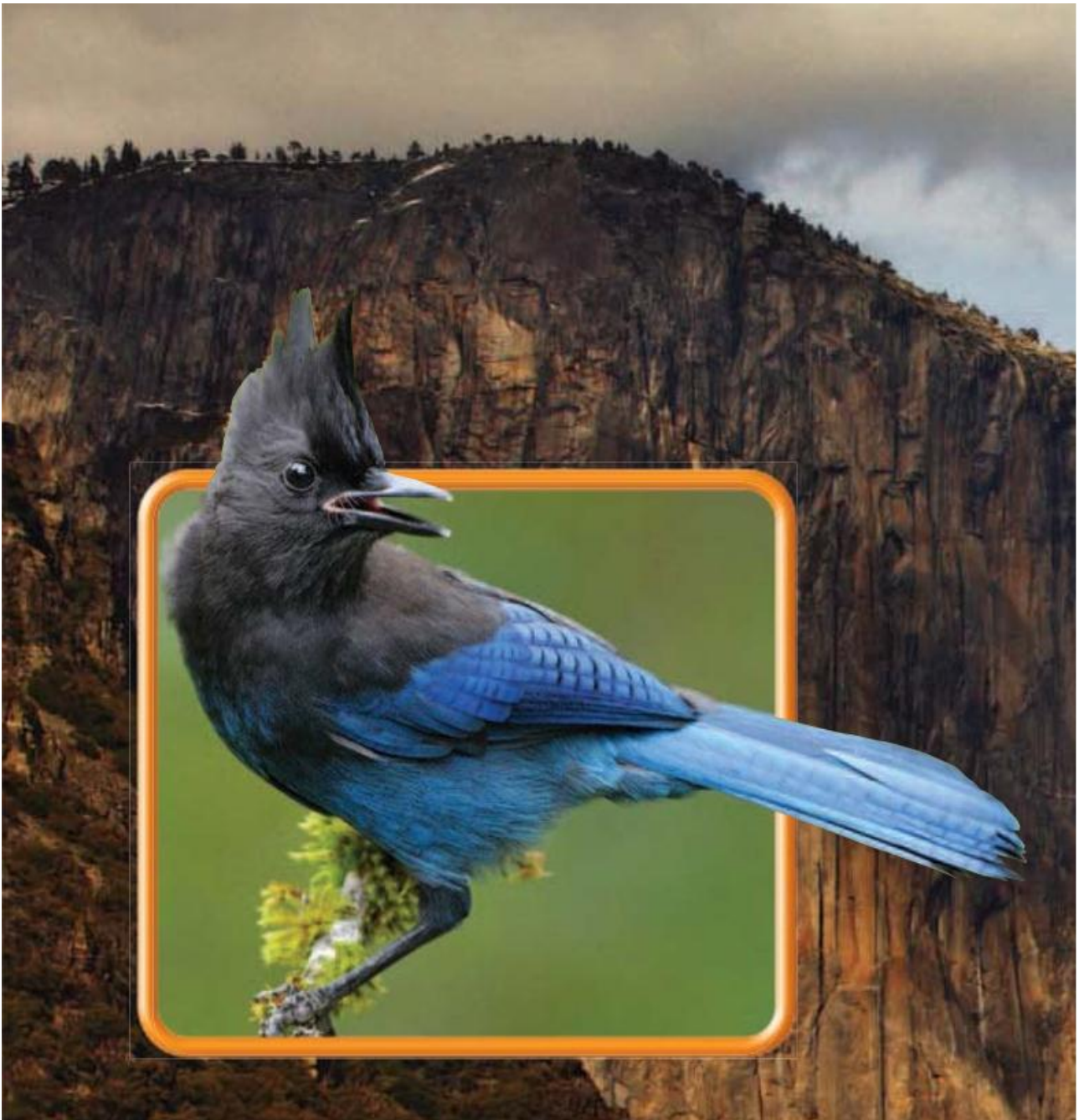


$436 \div 7 =$



$1608 \div 4 =$





BEST WISHES

